DOCUMENT RESUME

ED 478 128 CE 085 062

AUTHOR	Lamb, Stephen; Davies, Merryn; Polesel, John; Teese, Richard
TITLE	International Indicators for Vocational Education and Training: An Australian Perspective.
INSTITUTION	National Centre for Vocational Education Research, Leabrook (Australia).
ISBN	ISBN-1-74096-123-4
PUB DATE	2003-00-00
NOTE	77p.
AVAILABLE FROM	National Centre for Vocational Education Research, 252 Kensington Road, Leabrook, South Australia 5068, Australia (Cat. no. 981; $27.50 Australian). Tel: 08 8333 8400; Fax: 08 8331 9211; e-mail: vet_req@ncver.edu.au; Web site: http://www.ncver.edu.au. For full text: http://www.ncver.edu.au/research/core/cp0005.pdf.
PUB TYPE	Numerical/Quantitative Data (110) -- Reports - Research (143)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS
DESCRIPTORS	Comparative Analysis; *Comparative Education; Data Collection; Data Interpretation; Developed Nations; *Educational Indicators; *Evaluation Criteria; Evaluation Methods; Foreign Countries; International Educational Exchange; National Standards; Performance Factors; Policy Formation; Postsecondary Education; *Program Effectiveness; Program Evaluation; Secondary Education; *Specifications; Statistical Analysis; *Vocational Education
IDENTIFIERS	*Australia; Europe

ABSTRACT

This report examines issues related to the performance indicators used for international comparisons of Australia's vocational education and training (VET) system. Chapter 2 examines main sources of international comparisons of VET and main features of indicator frameworks used for comparisons. Chapter 3 presents an outline of these two main frameworks of indicators used in international comparisons of education, including VET: International Indicators of Education Schemes and a VET framework produced for European Union (EU) member states that could be used for international comparisons. Chapter 4 summarizes Australia's rankings on Organization for Economic Cooperation and Development (OECD) indicators of VET. It suggests that published data from OECD indicators provide an inconclusive picture about the effectiveness of Australia's VET system. Chapter 5 sets out a framework for statistical comparisons. One element outlines basic requirements needed in construction of a framework of indicators for comparing VET performance in Australia with VET internationally; the second is a proposed list of indicators grouped according to Australia's national policy priorities in VET. Using a variety of sources, Chapter 6 applies the indicators and indicator framework to establish whether an assessment can be made of how effectively the VET system in Australia is working in each policy area by comparison with other systems. Thirty-nine data tables are provided; 43 references are listed. (YLB)

Reproductions supplied by EDRS are the best that can be made
from the original document.

ED 478 128

NCVER

International indicators for vocational education and training

An Australian perspective

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

PERMISSION TO REPRODUCE AND DISSEMINATE THIS MATERIAL IN MICROFICHE, AND IN ELECTRONIC MEDIA FOR ERIC COLLECTION SUBSCRIBERS ONLY, HAS BEEN GRANTED BY

S. Huyma

2A TO THE EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)

Stephen Lamb
Merryn Davies
John Polesel
Richard Teese

BEST COPY AVAILABLE

International indicators for vocational education and training

An Australian perspective

Stephen Lamb

Merryn Davies

John Polesel

Richard Teese

NCVER

© National Centre for Vocational Education Research, 2003

This work has been produced by the National Centre for Vocational Education Research (NCVER) with the assistance of funding provided by the Australian National Training Authority (ANTA). It is published by NCVER under licence from ANTA. Apart from any use permitted under the Copyright Act 1968, no part of this publication may be reported by any process without the written permission of NCVER Ltd. Requests should be made in writing to NCVER Ltd.

The views and opinions expressed in this document are those of the author/project team and do not necessarily reflect the views of the Australian National Training Authority.

ISBN 1 74096 123 4 print edition
1 74096 124 2 web edition
TD/TNC 73.12

Published by NCVER
ABN 87 007 967 311
252 Kensington Road, Leabrook, SA 5068
PO Box 115, Kensington Park, SA 5068, Australia
www.ncver.edu.au

Contents

Tables and figures 4
Executive summary 6
Introduction 8
- Purpose of the report 8
- Structure of the report 9

Existing international comparisons 11
- Sources of comparison 11
- Features of indicator frameworks used for comparison 14

Main surveys and indicators 17
- Education at a glance: OECD indicators 17
- Key data on VET: European Commission indicators 22

Australia's ranking 27
- Comparing Australia and other OECD countries 27
- Summary 36

A new framework of indicators 37
- Basic requirements of an indicator framework 37
- The VET policy framework in Australia 38
- Indicators 38
- Maximising the value of public VET expenditure (outputs) 40

Applying the framework 41
- Context indicators 42
- Equipping Australians for the world of work (participation) 46
- Enhancing mobility in the labour market (participation) 55
- Achieving equitable outcomes (outcomes and outputs) 63
- Increasing investment in training (resources) 66
- Maximising the value of public VET expenditure (outputs) 72

References 73

Tables and figures

Tables

1 Changes between ISCED 1976 and ISCED 1997 20

2 Categories of ISCED classification for upper secondary education 21

3 Upper secondary enrolment patterns (1999) 30

4 Upper secondary graduation rates (1999) 33

5 Entry rates to tertiary education and age distribution of new entrants (1999) 35

6 Educational attainment, by age (1999) – Indicator 1.1 43

7 Labour force participation rates, by level of educational attainment and gender (1999) – Indicator 1.2 44

8 Unemployment rates, by level of educational attainment and gender – Indicator 1.3 45

9 Gross domestic product per capita (expressed in US dollars) (1999) – Indicator 1.4 46

10 Participation in initial vocational education and training, by age (1994) – Indicator 2.1 50

11 Distribution of participation in initial education and training, by gender (1994) – Indicator 2.2 50

12 Enrolment in tertiary non-university education, by age group, enrolment status and country (1991) – Indicator 2.4 51

13 Participation in school-based VET as a percentage of all students (1994) – Indicator 2.5 51

14 Transition activities at ages 15, 16, 17, 18, 19 and 20—net enrolment rates in public and private institutions, by level of education and age, based on head counts (1999) – Indicator 2.6 52

15 Percentage of VET participants in apprenticeship programs (1995–96) – Indicator 2.7 53

16 Distribution of apprenticeship participants, by gender (1995–96) – Indicator 2.8 53

17 Participation by where initial VET takes place (1994) 54

18 Duration of initial VET programs (1994) 54

19 Participation in programs giving access to further education and training opportunities (1994) 55

20 Participation in continuing education and training, by age group (1994–95) – Indicator 3.1 58

21 Average duration of training undertaken, by age group (1994–95) – Indicator 3.2 58

22 Participation in job-relevant adult education and continuing training, by level of educational attainment in selected countries (1999) – Indicator 3.3 59

23 Average number of hours of education and training, by level of educational attainment in selected countries (1999) – Indicator 3.4 59

24 Participation by adults aged 25–64 in continuing education and training, by labour force status (1994–95) – Indicator 3.5 60

25 Average time in continuing education and training, by labour force status (1994–95) – Indicator 3.6 60

26 Participation by adults aged 25–64 in continuing education and training, by gender (1994–95) – Indicator 3.7 61

27 Participation by adults aged 25–64 in job-related continuing education and training, by labour force status (1994–95) – Indicator 3.8 61

28 Average duration of training undertaken by employed adults aged 25–64 in continuing education and training (1994–95) – Indicator 3.9 62

29 Participation by employed adults aged 25–64 in continuing education and training, by type of training and firm size (1994–95) – Indicator 3.10 62

30 Participation by employed adults ages 25–64 in continuing education and training, by occupation (1994–95) – Indicator 3.11 62

31 Participation by adults aged 25–64 in continuing education and training, by gender (1994–95) – Indicator 3.12 63

32 Participation by place where training courses were taken (1991) 63

33 Relative earnings of the population with income from employment, by level of educational attainment and gender – Indicator 4.11 65

34 International comparison of public expenditure on education as a percentage of gross domestic product – Indicator 5.1 68

35 International comparison of public expenditure on education as a percentage of total government expenditure – Indicator 5.2 68

36 Expenditure per student (1998) – Indicator 5.3 69

37 Expenditure per student as a percentage of gross domestic product on public and private institutions, by level of education and country (based on full-time equivalents) (1998) – Indicator 5.4 70

38 Relative proportions of public and private investment in educational institutions – Indicator 5.6 71

39 Sources of financing of continuing education and training among employed adults by type of training (1994–95) – Indicator 5.7 72

Figures

1 Preliminary framework of indicators for VET 16

2a Upper secondary enrolment patterns (1999) 31

2b Upper secondary enrolment patterns (1999) 32

3 Entry rates to tertiary education and age distribution of new entrants (1999) 34

Executive summary

This report examines issues relating to the performance indicators used for comparing Australia's vocational education and training (VET) system against other countries. Specifically, it presents an outline of the main indicators that are currently used for international comparative analysis and examines some of the problems associated with their application. It then outlines a framework for developing a set of indicators which will assist in improving the understanding of the effectiveness of vocational education and training using international comparisons. Finally, the new framework of proposed indicators is tested using available, published data.

National bodies have invested considerable resources in the task of establishing effective data-collection processes and indicators to measure the substance, effectiveness and cost of vocational education and training. In Australia, this has taken the form of a centralised administration of institutional collections of data from the vocational education and training sector and from survey data collected by the Australian Bureau of Statistics (ABS). These collections focus on information at a domestic level. More recently, international comparative analysis has gained momentum, principally with the development of the statistical publications of the Organisation for Economic Co-operation and Development (OECD) and the United Nations Educational, Scientific and Cultural Organisation (UNESCO). In terms of vocational education and training, other developments in international comparison have also taken place, including the work undertaken by the member states of the European Union. This work has included the development of a set of indicators specifically for the comparison of vocational education and training systems.

A review of the indicators reveals the need to explore alternative approaches to measuring, defining and classifying Australia's vocational education and training activity in the international context. Australia's ranking on the main source of international comparison—the OECD indicators reported in the publication, *Education at a glance*—shows that a significant amount of activity in the sphere of VET is either being under-reported or classified and grouped in ways that limit comparisons of the effectiveness of VET systems. Much of this activity occurs at the interface of secondary school and tertiary education. The result is that data on VET reported in *Education at a glance* provide an inconclusive picture about the effectiveness of Australia's national VET system. This may be due in part to aspects of performance, but is more likely due to issues associated with the indicators used and the definitions and classifications that make it difficult to arrive at a fully informed view about Australia's performance. The ability to accurately compare Australia's VET system with that of other countries relies heavily on using a range of credible and valid international indicators that are sufficiently defined and consistently applied across those countries. The examination presented in the report raises questions about the extent to which this is happening in current international comparisons.

To overcome some of the current limitations, and based on the review of existing schemes, the report outlines a framework for statistical comparisons. The framework of indicators for comparing the performance of VET in Australia with VET internationally contains a number of basic requirements. At a logistical level, data must be regularly reported against the selected indicators by international or national agencies and be readily available. At a context level, up-to-date documentation on delivery structures for education and training as a whole as well as specifically for VET needs to be available. At a processing level, the ways in which country data are gathered and

tabulated, including definitions and classifications, need to be transparent. Finally, at an application level, the selection of indicators should be relevant to key policy objectives rather than being simply descriptive and analytical.

Based on these requirements, a set of indicators is proposed, grouped according to the national policy priorities in VET: equipping Australians for the world of work; enhancing mobility in the labour market; achieving equitable outcomes in VET; increasing investment in training; and maximising the value of public VET expenditure. The framework also includes a set of indicators which enables the social and economic context of different countries to be compared.

An application of the proposed indicator framework was undertaken using data from published comparisons in order to establish whether it is possible to make an assessment of how effectively the VET system in Australia is working in each of the policy areas by comparison with systems in other countries. Data were located for many of the indicators, and comparisons using those indicators are provided.

In the process of obtaining data for many of the indicators, several issues emerged. Uniformity in both the breadth of coverage and the points of time of comparison raised problems. Data for different countries were not necessarily available for the same period of time, and the number of countries on which there were available data varied depending on the indicator. Not all of the available comparisons provide information on Australia. Further work is needed to establish whether or not, for the indicators missing data on Australia, data can be sourced or whether they need to be collected.

The application of the framework also revealed that published comparisons were not available for some indicators. The availability and accessibility of data remain issues. The data used in this report were from secondary sources, involving comparisons already published in available reports or documents. This means that all of the comparisons were based on classifications and comparisons developed in other work. They do not necessarily provide adequate detail for a comparative evaluation of the effectiveness of national VET systems. Further work is needed using primary sources of data rather than secondary sources—work beyond the scope of this report—to examine the extent to which the indicators can be developed to more effectively capture the effectiveness of national VET systems. Primary sources for this purpose could include results from national surveys of education and training or labour force surveys undertaken regularly in countries such as Canada, the United States, and European Union members as well as in Australia.

Introduction

Purpose of the report

Evaluations of the vocational education and training (VET) system are an established feature of accountability and policy-making in Australia. Annually, the Productivity Commission undertakes a review of public services, including vocational education training, to measure performance, to assess changes and to monitor levels of service provision (for example, Productivity Commission 2002). The data that are collected and published aim to provide policy-makers with information that can be used to target improvements in government services by identifying how well services are meeting the needs of users, how efficiently, from a cost perspective, the services are delivered, and the impact the services have in delivering better outcomes for individuals, industry and communities. Similar evaluations of the VET system can be derived by examining the many statistical publications of the National Centre for Vocational Education Research (NCVER), the Australian National Training Authority (ANTA) and the Australian Bureau of Statistics (ABS). However, the data published through the statistical collections and reviews of the different bodies provide information only on a domestic context. There is a growing recognised need for international education statistics and indicators to help to compare the relative performance of national VET systems, to identify similarities and differences with other countries, to assist with political planning and to suggest new approaches to the development of improvements.

International comparisons of education and training are developing as an important practice in evaluating the effectiveness of national systems of education and are an important feature of policy-making. At the 2000 Ministers Conference on Youth Employment held in London, for example, international comparisons helped frame arguments about the most effective policies for supporting transition from initial education to work for young people (OECD 2001). For Australia, while labour force participation of teenagers was identified as a strength in the transition system, low levels of workplace learning in senior secondary schooling and the lack of monitoring and safety nets for at-risk students were identified as weaknesses. Australia has one of the highest rates of labour force participation for teenagers, but one of the lowest rates of participation in school-based VET (OECD 2000a).

Other countries have certainly recognised the importance of evaluating education and training policies through an international perspective. For example, as part of its mission to report on the effectiveness of education in the United States, the National Center for Education Statistics undertakes international comparisons producing reports that draw on multiple international education surveys. These reports relate information from various studies, both international and domestic, to more fully evaluate the context of the United States education system. For example, each edition of the *Condition of education* contains at least several indicators that compare the United States with other countries (National Center for Education Statistics 2001). European economic integration and world trading competitiveness have been two forces which have placed intense pressure on member states of the European Union to examine the relative performance of their vocational education and training systems as well as attempting to align structures and facilitate mobility (for example, European Commission 1997; Van den Berghe 1997; West 1999). As another example, Japan has recognised the need for the monitoring of its comparative

performance internationally through its own series, *International comparisons of educational indicators* (see Van Herpen 1992).

The value of international comparisons, however, rests on the quality of data and indicators used. There is little point in providing policy-makers and political planners with information that is not an accurate or reliable comparison of statistics across countries, or to use indicators that do not reflect fully or adequately the different features and dimensions of education systems. The ways in which country data are gathered and tabulated, including definitions and classifications, need to be open and consistent. International comparisons involve assumptions of comparability and need to operate on conventions of equivalence. Differences between the education systems and the structures of governance make such comparisons difficult. As Schleicher (1995, p. 217) has noted: 'even if data are reasonably accurate and adequate for the needs of national data requesters they may not be comparable at an international level because of, for example, differences in national definitions and classifications'. There is also need for a breadth of indicators to permit a comprehensive comparison of the way education and training institutions function in each system. This highlights the need for comprehensive and consistent performance information that will support the development of a more complete range of performance indicators. It raises issues of coverage (what makes up the measures of VET activity) and boundary (what specific data items should be included to make up the statistics).

In this context, what are the statistics and indicators that should be used to evaluate Australia's VET system in an international context? Are those currently used equal to the task of providing reliable, valid and accurate measures for evaluating the relative performance of Australia's VET system against other countries? It is these questions that the present report addresses by focussing on a conceptual framework for international comparisons of VET.

Structure of the report

To address the question of what indicators are needed to evaluate the effectiveness of Australia's VET system, it is important to identify the sorts of indicators and comparisons currently used. The second chapter of this report provides a detailed overview of the main sources of international comparisons of VET and of the main indicators used for these purposes. This chapter also presents some of the features of indicator frameworks used for comparisons. It shows that policy priorities are an important feature in the development of education indicator frameworks. This can make comparisons difficult if the policy priorities change over time.

The third chapter presents an outline of two of the main frameworks of education and training indicators used in international comparisons of VET. The first of the schemes—the International Indicators of Education Systems—is a scheme that is used by UNESCO and OECD in many of its publications. Australia is often included in many of these comparisons. The second scheme has been produced for the European Union member states and does not include comparisons with Australia. However, as this chapter reveals, the indicators relate to VET specifically and could be used for comparisons with countries outside the European Union.

Chapter four summarises Australia's rankings on some of the OECD indicators of VET. It suggests that the published data from the OECD indicators provide an inconclusive picture about the effectiveness of Australia's national VET system. This may be due partly to aspects of performance, but is also due in part to issues associated with the definitions and classifications of data that make it difficult to arrive at a fully informed view of performance.

The fifth chapter of the report sets out a framework for statistical comparisons. This comprises two main elements. The first outlines basic requirements that are needed in the construction of a framework of indicators for comparing the performance of VET in Australia with VET internationally. The second is a proposed list of indicators, grouped according to Australia's

national policy priorities in VET. The list is not exhaustive, but provides some examples of key indicators that can be used to compare effectiveness across systems in each of the policy areas.

Chapter six presents an application of the indicators and the indicator framework. Using a variety of sources, the aim in this chapter is to apply the indicators in order to establish whether it is possible to make an assessment of how effectively the VET system in Australia is working in each of the policy areas by comparison with other systems.

Existing international comparisons

Over the past two decades international comparative analysis has gained momentum as nations strive to measure the dimensions, effectiveness, and efficiency of their education systems, including VET. This chapter examines the various sources of international comparisons of VET as well as the main features of the key statistics used to measure the effectiveness of Australia's VET system against other countries. The next chapter provides an overview of the main indicator frameworks used in international education statistics publications.

Sources of comparison

There tend to be three main sources of international comparison involving VET. The first group includes those provided as part of a broader set of statistics on education used to assess the relative performance of national education systems. Such international comparisons often involve statistics and indicators for all levels of education and training from primary through to university study and adult education. The comparisons are often ongoing, undertaken regularly, and therefore can be used to monitor progress and record trends. The second source are comparisons undertaken specifically as evaluations of VET rather than as part of a broader profile of education. These comparisons involve the use of indicators and statistics relating only to VET. They also are often undertaken regularly and, therefore, can be used to monitor progress and record trends. The third source are comparisons usually undertaken as one-off studies involving two or a small number of countries. Such studies or reports can provide information on VET as part of a comparison of education systems more broadly, or they can provide information that focusses specifically on VET.

Broader comparisons of education and training systems

The most prominent examples of the first type of comparison are the international education statistics publications of the United Nations Educational, Scientific and Cultural Organisation (UNESCO), and the Organisation for Economic Co-operation and Development (OECD). The OECD's publication *Education at a glance* is one of the most comprehensive published set of international indicators comparing the size and dynamics of different education and training systems (OECD 2001). Based on data provided by the national agencies of the contributing countries, *Education at a glance* includes a variety of indicators on education covering all levels of school-age and adult populations. Indicators on VET are included as part of the assessment of national education systems. The indicators were devised as part of the Indicators of National Education Systems (INES) project. This project aimed to develop a system of indicators for cross-national comparisons in education. It was begun in 1988 in response to the requirement of national policy-makers for information that would allow them to compare the performance of their education systems with those of other countries and to better assess and monitor the effectiveness and evolution of their education systems. The scheme devised through this project (and updated periodically) is used in *Education at a glance*. An outline of *Education at a glance* and what it contains is provided in the following chapter.

Other examples from the same organisations include the *Statistical yearbook*, published by UNESCO, which is produced annually and contains international data across a range of fields

including education and training (UNESCO 1999). Another involves publications using the World Education Index. In September 1997, OECD and UNESCO established the World Education Indicators project, with the support of the World Bank. The primary aim of the project was to develop a small but critical mass of policy-oriented education indicators that measure the current state of education in an internationally valid and comparable manner. The indicator framework established by OECD for the Indicators of National Education Systems project is used as the basis for indicators in the World Education Indicators project. The report *Investing in education: Analysis of the 1999 World Education Indicators* (OECD 2000b) provides a comparison using World Education Indicators. It focusses on countries not included in *Education at a glance* and provides comparisons at all levels of education including vocational training.

International comparisons of education are undertaken by other organisations, with comparisons using different indicators from those devised by UNESCO and OECD. The European Union has a long tradition of collecting, collating and publishing data on a wide range of areas, including education. Eurostat, the statistical office of the European Union, and the Eurydice network, a key education and information and analysis body of the European Commission, have developed a set of indicators on education for comparisons between member countries of the European Union. Publications using the indicators appear regularly. One series, titled *Key data on education in Europe*, provides comparisons across a set of performance indicators of the education systems of member countries (European Commission 2000). The indicators cover all levels of education from pre-primary to higher education. Vocational training receives little attention in this series.

Specific comparisons of vocational education and training

The second source of international comparisons involving VET are those which specifically compare different national VET systems. While such comparisons may include measures on other forms of education, such as participation in levels of senior secondary schooling, they mainly target vocational training and are undertaken with the purpose of evaluating vocational training systems.

The European Commission publishes a separate series on vocational training. This series, commencing with *Key data on vocational training in the European Union* (European Commission 1997), is the main example of the second type of international comparison. It provides assessments of the relative performance of different national systems of VET. The indicators used for the comparisons all relate to vocational training. They were developed by the bodies Eurostat and DG XXII (the department of Directorate Generals of the European Commission responsible for education, training and youth). Based on a number of surveys and data-collection processes from Eurostat in co-operation with the European Union Member States, the publications contain a comprehensive set of indicators comparing levels of participation, resources, organisation and outcomes of VET across national systems. An outline of the European Union key data publications and what they contain is provided in the next chapter.

A further example of international comparisons of VET systems is provided by the publications of the European Training Foundation. As part of its mandate to promote co-operation in vocational training between the European Union and partner countries in central and Eastern Europe, the European Training Foundation developed an abbreviated set of key indicators providing basic information on VET in each country. Using the indicators, the European Training Foundation has published a series of reports comparing the performance of different national systems. The reports (such as *Vocational education and training in Central and Eastern Europe: Key indicators report 2000*) provide information on four areas: access and participation in VET, outcomes of VET, expenditure on VET, and employment trends.

One-off comparisons

The third main source of international comparisons of VET involves those usually undertaken as one-off studies of a small number of countries. Such studies or reports can provide information either on VET as part of a comparison of education systems more broadly across countries, or be focussed specifically on VET. There are many examples of such comparisons. As part of a study of the education systems in Canada and Australia, Windshuttle (1988a) reported that while retention rates were much lower in Australia, tertiary enrolments were much higher, thanks in large part to substantially higher participation rates in technical and further education (TAFE). The rate of enrolments in TAFE alone in Australia represented roughly 85% of the total Canadian tertiary enrolment. The study by Windshuttle was part of a series of international comparisons of education and training statistics. Others in the series included bi-lateral comparisons between Australia and the United States (Windshuttle 1988b) and Australia and Japan (Collins 1989). The publications focussed on all levels of education, not just VET, and provided statistics on enrolments, expenditure and fields of study. Data were derived mainly from official sources recorded by central agencies such as the Australian Bureau of Statistics.

A much larger series of international comparisons with Australia—the Country Education Profile Series—has been prepared by the National Office of Overseas Skills Recognition in association with the International Development Program of Australian universities and colleges. This series covers a vast range of countries and also focusses on all levels of education, not just VET, providing statistics on enrolments, participation and outcomes (in some instances). Data were also derived mainly from official sources recorded by central agencies (for example, Fahmy 1992; Hempel-Jorgenson & Hempel-Jorgenson 1992; Teese 1992a, 1992b).

Single studies (not part of a series) have also been undertaken. Lenahan, Burke and Hing Tong Ma (1998), for example, published a comparative study of educational expenditure and participation in selected Asian countries and Australia. It provided information on various levels of education including VET. OECD indicators were used as the framework for data collection in that study. The OECD indicators were also used as the framework for international comparative studies on education published by the United States. The 1996 report, *Education in states and nations*, published by the United States Department of Education, provides a set of comparisons between the various states of the United States and a range of countries, including Australia, on all levels of education including postsecondary education (National Center for Education Statistics 1996). The comparisons include statistics on participation (enrolments, enrolment ratios), processes (staff numbers, class sizes, instructional time), achievement (completion, gender equity, attainment), labour market outcomes (employment, unemployment, earnings) and finance (public expenditure, teacher salaries, sources of funds).

There are also examples of single or one-off international comparisons focussing on VET specifically. Among many other studies, one example was that undertaken in the United Kingdom with the principal aim of producing an up-to-date and robust set of data on the education, training and skill levels, and the associated institutional systems and policies, in five countries: Germany, France, Japan, Singapore and the United States (Felstead & Ashton 1994). The report focussed on the following areas of study:

- ✧ the institutional characteristics of each vocational education and training system
- ✧ participation rates in general education, vocational education and vocational training for each country; the costs of the different VET systems
- ✧ the qualification/skill structure produced; and levels of basic reading, writing and mathematical skills.

Another example is provided in a study by Ryan (1992) that looked at the national systems of VET in Scotland, Canada and Hong Kong and compared them with aspects of the systems in Germany,

Britain and Japan. Such studies attempt to provide an overall assessment of the performance of the VET systems at a national level through international comparison.

Features of indicator frameworks used for comparison

Models or frameworks of education and training indicators have some common features. Almost all models tend to adopt an approach of inputs and outputs. The framework in the United States comparative study of international indicators (National Center for Education Statistics 1996) included information on sets of input factors such as financial, institutional and personnel resources (for example, expenditure on education as a percentage of gross domestic product) as well as a range of output measures such as achievement, completion rates, and labour market outcomes (for example, percentage of graduates unemployed six months after completion, labour force participation by attainment, participation and completion rates). Indicator frameworks also tend to provide information on context—the demographic, social and economic context of education and training—for the purpose of evaluating function against the background of initial conditions that may vary from country to country (for example, unemployment rates, literacy skills, educational attainment of the adult population).

Within indicator frameworks, output measures have become particularly important in the comparative evaluation of the effectiveness of education and training systems. Outcomes may be short- or long-term, occurring during, after or well after the incidence of education and training. They may be related to individuals (for example, percentage making a transition to further study, dropout rates, percentage who gain employment or promotion), to industries or to systems (for example, improved productivity, higher levels of participation in lifelong learning, lower levels of unemployment). Measures of short-term effects (for example, dropout rates, completion, employment) tend to be more easily obtained and reported than longer term outcomes which tend to focus on impact (for example, increases in educational attainment in the population, higher skill levels). Longer term outcomes, however, are important because they can often measure the impact of more immediate outcomes and the enduring effects of education and training; for example, the effects on employment and unemployment of rises in educational attainment.

Another feature of models of education and training indicators is that they are often developed within policy priority frameworks. For example, the framework of effectiveness and efficiency indicators developed for measuring the vocational education and training systems in Australia is based on common and agreed national goals for VET. As reported by the Productivity Commission (1995), in the mid-1990s the two agreed broad aims of the VET system in Australia were, firstly, to provide an educated, skilled and flexible workforce to enable Australian industry to be competitive in domestic and international markets, and, secondly, to improve the knowledge, skills and quality of life for Australians, having regard to the particular needs of disadvantaged groups. Six specific priorities were established which were reflected in the Agreement for a National Vocational Education and Training System (ANTA Agreement) endorsed by the state and federal ministers in 1992. The six priorities were to:

- develop a national vocational education and training system in which publicly funded, private and industry providers can operate effectively, efficiently and collaboratively and which meets the needs of industry and individuals
- improve the quality of the outcomes of vocational education and training
- improve vocational educational and training opportunities and outcomes for individuals
- improve the ability of the vocational education and training system to respond to the current and future needs of industry
- improve access to and outcomes from vocational education and training for disadvantaged groups

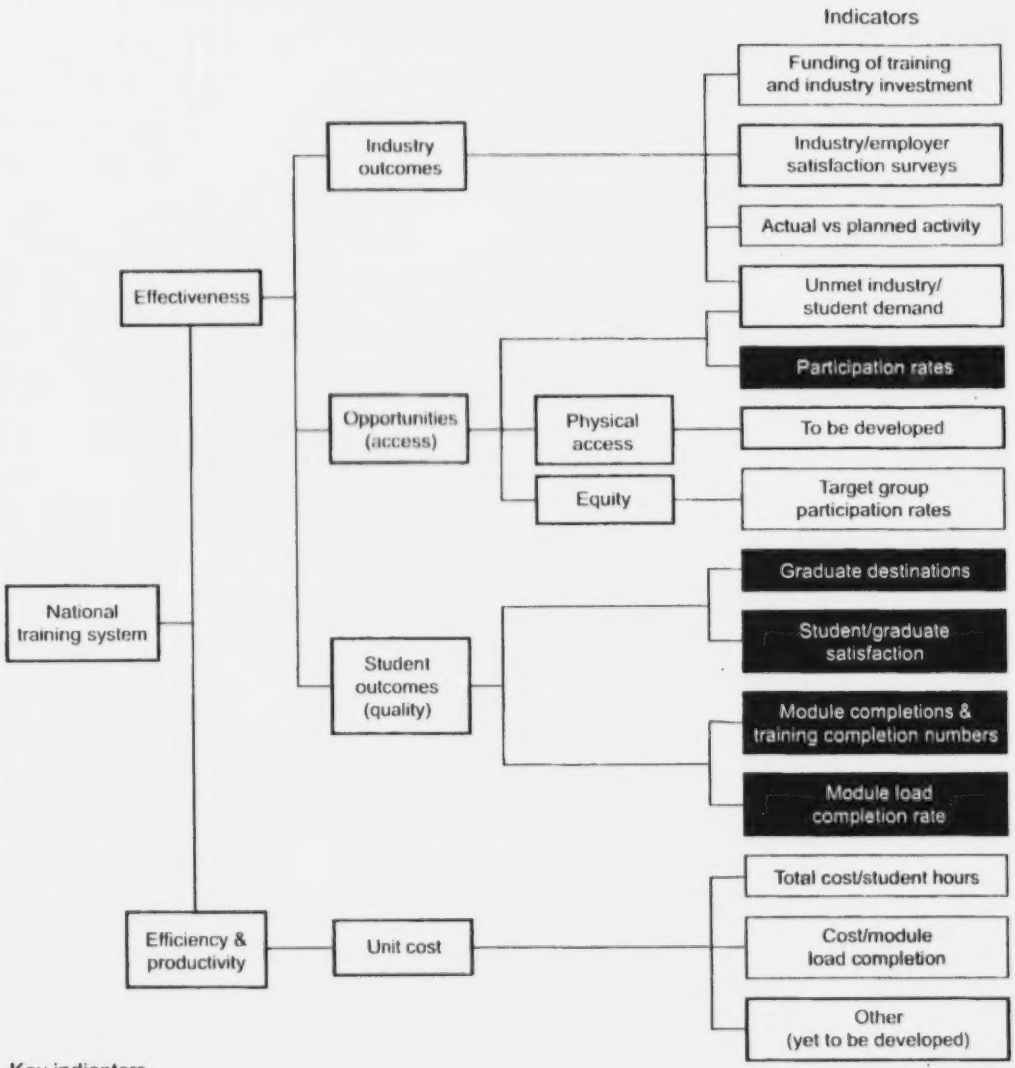
- ✧ increase public recognition of the value of vocational education and training as an investment for both industry and individuals.

Policy priorities provide an overall framework which enables objectives of vocational education and training to be identified and proposals for statistical indicators to be made. For example, from the goals and priorities agreed by the relevant state and Commonwealth ministers in Australia, a framework of indicators was developed to help evaluate the effectiveness and efficiency of the VET system in pursuing and achieving these goals (Productivity Commission 1995). The framework is presented in figure 1.

Another feature of indicator frameworks is that they tend to require access to data from a variety of sources, not all of which are necessarily provided in different countries. Many international comparisons rely on data obtained from such sources as federal, national, international, and state agencies, private research organisations, and professional associations. The data can be collected using many research methods, including surveys of a population (such as is provided in census data, or populations of education and training graduates) or of a sample (such as representative groups of selected participants or completers), and compilations of administrative records (such as that provided through the Australian Vocational Education and Training Management Information Statistical Standard [AVETMISS] in Australia).

Surveys designed to obtain information about education and training can have different aims and objectives and data of different types are often collected, although they are a major source of information on VET. For example, the sample surveys of education and training undertaken in Canada and Australia as supplements to the monthly labour force surveys can provide information on participation as well as transition for different age and gender groups. Graduate destination surveys are undertaken in many European countries to monitor employment and earnings outcomes. Differences in procedures, timing, and phrasing of questions, mean that the results from the different sources may not be always comparable. Countries can also be at different stages in the sophistication of their data development and collection systems, and thus, have different types of data available. A limited number of countries (for example, Denmark, Switzerland) have national registers that follow student cohorts throughout their education career. Some countries (for example, United States, Canada) have large survey programs that collect data regarding education based on samples of the population. In addition, in terms of VET, some countries (for example, Australia, the United Kingdom) have extensive national-level data available through administrative records.

Figure 1: Preliminary framework of indicators for VET



Key indicators

- ■ Provided on a national basis for this report
- □ Information not complete, or not strictly comparable
- □ These indicators have yet to be developed

Source: Productivity Commission (1995, p 301)

BEST COPY AVAILABLE

Main surveys and indicators

Education at a glance: OECD indicators

The Organisation for Economic Co-operation and Development collects and disseminates cross-country comparable data on a range of economic and social indicators. Among the most prominent of these are education statistics. Here the most high profile publication and one which best reflects OECD's activity in this area is *Education at a glance*, which is a volume of statistical indicators that has been published annually since 1992.

Education at a glance currently presents data for 30 OECD countries, together with those of developing countries participating in the World Education Indicators program. Indicators are presented over four key areas: financial and human resources invested in education; participation in education; learning environments and organisation of schools; individual and labour market outcomes of education.

Measurement of VET activity and performance is confined largely to three of the four areas. The areas and the indicators developed to measure activity and performance involving VET include:

- ✧ Financial and human resources invested in education
  - annual expenditure per student (broken out by educational level)
  - ratio of students to teaching staff (broken out by educational level)
- ✧ Participation in education
  - school expectancy (in years)
  - net entry rates in tertiary-level education (strongest focus type A, however)
  - expected years of tertiary education (as above)
  - index of change in tertiary enrolment
  - percentage of 25–64-year-olds participating in continuing education and training
  - expected hours of training outside formal education system over the lifecycle
- ✧ Individual and labour market outcomes of education

  a. educational attainment of the adult population and current graduation rates
  - upper secondary attainment or higher (25–64-year-olds)
  - current upper secondary graduation rate
  - tertiary attainment (25–64-year-olds)
  - first-time tertiary graduation rates (type A only)
  - number of science graduates per 100 000 in the labour force, 25–34 years of age

  b. index of differential, tertiary type A to upper secondary
  - males
  - females

  c. ratio of unemployment, tertiary type A to upper secondary
  - males
  - females.

Classifications of education and training

Statistics in *Education at a glance* are classified according to the International Standard Classification of Education (ISCED) which provides a means of presenting data from national education (and some training) systems in a consistent format. Its structure comprises seven levels:

- pre-primary (0)
- primary (1)
- lower secondary (2)
- upper secondary (3)
- post-secondary non-tertiary (4)
- tertiary (5)
- advanced research (6).

For the purposes of this paper it should be noted that levels 3, 4 and 5, the levels where vocational elements figure most prominently, are further sub-classified by study orientation (O'Reilley 2002, p.1):

- academic/general (A)
- vocational, leading to further study (B)
- vocational, leading directly to the workforce (C).

The International Standard Classification of Education was first implemented in the mid-1970s. Since then structures and orientations of education and learning systems have changed, in some cases quite significantly. Throughout the different stages, the reliability, comparability and political relevance of the indicator sets were systematically enhanced and many new indicators developed.

Increasing complexity of education systems and a growing breadth of activity is therefore reflected in cumulative changes to the International Standard Classification of Education over time. It has recently been noted for example, that greater system flexibility has meant new pressures on comparability of statistics between countries. In many cases new forms of provision have appeared and the boundaries which traditionally separated different types of provision have blurred (OECD 1999, p.3). Amendments made to the International Standard Classification of Education in 1997 were aimed at the improvement of comparability of international educational statistics and it was hoped that data collected under the framework of ISCED–97 would both allow for the comparison of educational programs with similar levels of educational content and reflect increasingly complex educational pathways in the OECD indicators (OECD 1999, p.3).

Effectively, the biggest change between the revised ISCED and the former ISCED (ISCED–76) was the introduction of a multi-dimensional classification framework allowing for alignment of the educational content of programs using multiple classification criteria (OECD 2001, p.28).

Strong attempts were also made at that point to bring further programs within the ambit of International Standard Classification of Education coverage, with a particular focus on continuing education and training. It was envisaged that the continuing education and training indicators would cover areas such as:

- patterns of participation in continuing education and training (participation frequency, number of courses, duration)
- demand characteristics of continuing education and training (by age, gender, level of education, labour market status)

- ✧ supply characteristics of continuing education and training (providers, media of instruction, financial support, barriers).

One of the significant features of the International Standard Classification of Education classification process and its application within the OECD is the intensive and consultative work of the OECD/Indicators of National Education Statistics technical group in assisting in the development of indicators and in uniformly applying those indicators to programs at the individual country level. These classifications have informed the typologies of programs which place vocational education and training across a range of classifications and sub-classifications in current datasets.

OECD indicators and vocational education and training provision

Under the recently introduced multi-dimensional classification framework which recognises considerable degrees of variation across programs, it is accepted that neither the duration of a program, nor its theoretical or typical starting ages should be primary criteria for level attribution. International Standard Classification of Education classifications continue to regard educational content as the primary unit of classification, attempting as far as possible to promote comparability of courses along this axis in the first instance (OECD 1999, p.12). Programs are defined on the basis of their educational content as an array or sequence of activities organised to accomplish a set objective. Objectives may vary, ranging from preparation for further study, acquiring a qualification or credential as a starting-point for labour force entry, or simply increasing knowledge and understanding. ISCED–97 does not assume an uninterrupted sequence of educational activities: it covers initial education at the early stages of a person's life as well as entry to the world of work and continuing education throughout life.

But orientation to content must be tempered by other 'auxiliary' criteria to allow the grouping of particular courses or offerings into most like classifications. As guidelines for ISCED–97 point out, curricula alone are too diverse, multi-faceted and complex to permit unambiguous classifications. Programs are therefore subjected to 'auxiliary' assessment which involves criteria such as:

- ✧ typical starting ages of participants and duration of programs
- ✧ typical entrance qualifications or pre-requisites
- ✧ types of qualifications or credentials awarded
- ✧ types of education for which completers are eligible
- ✧ degree to which program is specifically oriented to particular class of occupation
- ✧ degree to which program is specifically geared toward immediate transition to labour market.

It is notable that this classification system is of particular significance in attempts to locate appropriately vocational education and training in international comparative schema. The OECD offers as an example of the application of its multiple classification criteria the difficulties involved in effecting an appropriate cross-country comparison of training undertaken under Australian Qualification Frameworks:

> Australia, New Zealand and the United Kingdom are examples of countries where the final years of secondary education and the first years of the tertiary level of education are organised according to a qualification framework based on recognition of competencies. This organisation framework implies that the mapping of programs at the boundary between these educational levels cannot be solely based on either the typical entry ages of participants or the theoretical duration of the programs. In the area of vocational education and training the Australian National Framework for the Recognition of Training includes provision for the recognition of prior learning, competency-based articulation of courses and credit transfer between them, accreditation of courses, registration of private providers and mutual recognition among states of qualifications obtained by individuals through accredited courses.

> The National Vocational Qualification (NVQ) in the United Kingdom provides a similar competency-based model. For these types of programs, multiple classification criteria must be used to map them to ISCED–97. (OECD 1999, p.12)

Table 1 illustrates the changes made between ISCED–97 and ISCED–76. They are of particular significance in providing greater depth and coverage in reporting vocational education and training activity from the upper secondary level of education, in post-secondary non-tertiary education and in the first stages of tertiary education. Level 4—post-secondary non-tertiary education, with sub-classifications including general-content courses, those preparing for further study and those aiming at direct workforce preparation—had been particularly poorly covered in the past, generally allocated to 'education at the second level, second stage' or 'education at the third level, first stage, of a type that leads to an award not equivalent to a first university degree' (OECD 1999, p.14).

Table 1: Changes between ISCED 1976 and ISCED 1997

ISCED 1976		ISCED 1997	
0	Education preceding the first level	0	Pre-primary level of education
1	Education at the first level	1	Primary level of education
2	Education at the second level, first stage	2	Lower secondary level of education (2A, 2B and 2C)
3	Education at the second level, second stage	3	Upper secondary level of education (3A, 313, 3C)
		4	Post-secondary, non-tertiary education (4A, 413, 4C)
5	Education at the third level, first stage, of the type that leads to an award not equivalent to a first university degree		
6	Education at the third level, first stage, of the type that leads to a first university degree or equivalent	5	First stage of tertiary education 5B, 1st, 2nd qualifications (short or medium duration) 5A, 1st degree (medium duration) 5A, 1st degree (long) 5A, 2nd degree
7	Education at the third level, second stage of the type that leads to a post-graduate university degree or equivalent	6	Second stage of tertiary education (leading to an advanced research qualification
9	Education not definable by level		

The complexities of these classification levels and the continuing opportunities for variability within sub-classifications may be illustrated by a cross-national comparison of programs which are classified under various sub-categories of ISCED–97's Level 3; that is, the upper secondary level of education. Entrance age to the level is typically 15 to 16 years, although the level does include some special needs programs and all adult education similar in content to education given at this level. There may be significant differences in course duration, ranging from 2 to 5 years of schooling or training. This level may be 'terminal', that is, preparing students for entry directly into working life, or 'preparatory', preparing students for further or higher education. The level may be divided into three groupings:

- 3A, designed to provide direct access (on satisfactory completion) to ISCED 5A (university or comparable study)
- 3B, designed to provide direct access (on satisfactory completion) to higher vocational study
- 3C, designed to prepare students for direct entry into the labour market.

In addition, program orientation may be further highlighted by sub-division of the above into three separate categories of orientation:

- Type 1 (general)
- Type 2 (pre-vocational or pre-technical)
- Type 3 (vocational or technical).

Examples of such a classification framework are given in table 2 and illustrate the degree of difference and approach even within this one level of classification.

Table 2: Categories of ISCED classification for upper secondary education

3A: Tertiary-preparatory	3B: Pathway to higher VET study	3C: Pathway to labour market
Type 1 (general)	Type 1 (general)	Type 1 (general)
Germany Upper secondary schools, general Grades 11–13, leading to *Abitur*.		Program with cumulative duration less than ISCED 3A or 3B **Australia** Entry to Employment or Further Education: Educational Stream 2200 6-month course designed to provide remedial education to enable participation in later education or social settings. For 15+
Greece Comprehensive Lyceum, *(Eniaio Lykeio)* High-level general, preparing for higher education studies or entrance to labour market through further skill development and training		**Hungary** Basic education program of vocational school, around Year 9–10 general subject courses, preparing for programs which require Year 10 levels. Ages around 14–15
Type 2 (pre-vocational/pre-technical)	Type 2 (pre-vocational/pre-technical)	Type 2 (pre-vocational/pre-technical)
Hungary Szakkozepiskola nappali kepzes 9–12 Upper-level secondary education with pre-vocational elements, preparing for Maturity Examination	**Hungary** Felnottek szakkozepiskolaja 9–12 Upper level part-time secondary education program preparing pupils for Maturity examination—pre-vocational program elements	a. Programs with cumulative duration comparable to 3A or 3B programs: **Ireland** Leaving Certificate (Applied) 2-year program focussing on theoretical and practical vocational modules: no higher or further education pathway
Ireland Leaving Certificate Vocational program. One of 3 streams leading up to Leaving Certificate, combining general and vocational subjects	**Iceland** Fine and applied arts program at upper secondary school level' designed to provide access to fine arts program at ISCED 5B	b. Program with cumulative duration less than ISCED 3A or 3B **Austria** *Polytechnische Schule*, pre-voc. year Typical starting age around 14. One year program in last year of compulsory education, introduces broad occupational fields, often followed by apprenticeship (3B)
Type 3 (vocational or technical)	Type 3 (vocational or technical)	Type 3 (vocational or technical)
Belgium *Gewoon secondaire onderwijs – 2de graad en 1ste en 2de leerjaar van de 3de graad TSO* Second stage and first and second years of third stage of technical secondary education concentrates on general and technical/theoretical subjects. Students can subsequently join labour market or pursue studies in higher education.	**Australia** Complete trade courses (Stream 3212) Training to comparatively high level of competence but less than a paraprofessional within same industry. Courses may lead to more advanced further education but tend to be labour market pathways.	a. Programs with cumulative duration comparable to 3A or 3B programs: **Hungary** Szakiskolai szakkepzo evfolyamok es programok 1–2 year vocational program preparing for National Vocational Qualification List exams. Entry requirement Year 10.
Italy *Istituto tecnico* – some technical colleges train young people at intermediate level in agriculture, industry, commerce and tourism. After 5 years training students are vocationally qualified or may choose to progress to university	**Austria** Lehre (Duale Ausbildung) 3-year program, sited at both workplace and vocational education school (dual system). Described as apprenticeship, students employed and paid by enterprise.	b. Program with cumulative duration less than ISCED 3A or 3B **Italy** Formazione professionale regionale post-obbligo 2-year regional program offering basic qualification, ages 14–18
United Kingdom General National Vocational Qualification Advanced level. Generally young people 16–19 in schools or colleges but may be adults—roughly equivalent to General Certificate of Education (GCE) grade A or Level 3 National Vocational Qualification. Program can lead to a job or to further study. Around 2 years.	**France** Bacalaureate Professionale Preparation for vocational *baccalaureate*. Can be apprenticeship, aims at spreading instruction between training institution and workplace, focus tends to be on labour market entry although a minority of graduates then undertake *Brevet de technicien suopenieur* (BTS) at ISCED 5B	**France** Enseignement de second cycle professionel du second degre (sous statut scolaire) 2-year program prepares for vocational diploma, leading to job or further VET training (at ISCED 3A or 3B level) Ages 15–17.

Source: OECD 1999, pp. 43–46

Post-secondary non-tertiary classifications (International Standard Classification of Education level 4) also provide a range of VET classifications. This level was introduced in 1997 to cover programs that 'straddle the boundary between upper secondary and post-secondary education from an international point of view', (even though they may be considered to be upper secondary or post-secondary in a national context). Their content may not be significantly more advanced than upper secondary programs but they are regarded as broadening the knowledge of participants, most of whom would have received an upper secondary qualification (OECD 1999, p.47). It is noted that students at this level tend to be older than those enrolled at the upper secondary level (OECD 2001, p.398).

Dimensions not accounted for in ISCED–97 but of significant relevance to vocational education monitoring include institutional and structural arrangements, such as the division between school-based and combined school and work-based programs, service provider identification (which may include government and non-government agencies, business firms, training groups and unions or professional associations), modes of service provision, types of students and intensity or time commitment among programs.

Key data on VET: European Commission indicators

Data sources

The indicator framework for the international comparisons of European Union countries used in the *Key data on VET* publications is based on data collected from a VET survey of participating nations, and several additional surveys that contain data relevant to education and training.

Much of the data for the VET indicators developed in the European Union is based on information collected as part of the Vocational Education and Training Data Collection. This collection is a statistical tool developed by DGXXII and Eurostat, in collaboration with the European Centre for the Development of Vocational Training, under the Leonardo da Vinci program. It was established by the European Commission to gather comparable information on vocational education and training programs in the European Union countries and to produce statistical indicators for use in evaluating the performance of national VET systems. The first collection commenced in 1994 and referred to the 1993–1994 academic year. Initially the database covered 238 programs in 15 European member states. From that time the data has been collected annually.

The data are collected via a questionnaire and software developed by Eurostat and completed by individual member nations (usually by the Ministry of Education or Employment, or national statistical offices) and are subsequently compiled by Eurostat. The statistics provided by European Union members are presented program by program and cover the main characteristics of each VET program, such as duration, the place of training, method of funding, and number of participants. A range of issues is covered including:

- the types of VET programs
- the theoretical age of participants
- entry requirements
- the learning context (educational/training institution, enterprise, distance learning)
- duration of training
- hours of training
- source of funds

- criteria for completion of program (for example, examination, attendance)
- the number of participants in the program and the number of completers of training programs.

There are other features of the data collected. They are semi-aggregated in that some programs are grouped together. Not every national VET program is taken into account in the collection, some are regrouped or split into program units. The collection applies a common framework of classifications and definitions in order to adapt individual and sometimes unique national statistics to comparable standards or measures. The data tend not to include detailed information on programs offered by non-public bodies, largely because such information is not uniformly available at central administrative level.

The Vocational Education and Training Data Collection survey of European Union members is based on administrative sources. It is different from the data collected for the OECD indicators and other indicator schemes in that data are collected on a program-by-program basis without pre-defined categories to which programs and data should be allocated. Instead, detailed data on participation in VET, as well as on a number of characteristics of each program, are collected and then compiled with a view to establishing, after processing, common classification categories.

The main unit of comparison used in most publications involving the data is not the number of programs but the number of participants (the volume of training), because the number of programs varies considerably depending on the way in which the national system of VET is organised.

The main data-collection body, Eurostat, also undertakes additional surveys that contain data relevant to education and training, such as the European Labour Force Survey, the Continuing Vocational Training Survey, and the Family Budget and Eurobaromoter surveys. The Continuing Vocational Training Survey provides information about continuing training provided by enterprises: the number of employees participating, time spent on courses, occupational category of participants, subject of training (for example, management and organisational techniques), type of provider, costs, and type of training. The European Union Labour Force Survey is a household survey that provides information on the highest level of education and training attained, and training received in the four weeks prior to the survey.

The statistical indicators on education and training produced by the European Commission in the key data on VET publications are derived from the above surveys. They differ from the OECD indicators reported in *Education at a glance* in several ways. Firstly, they are limited to European Union countries and therefore do not provide comparisons more widely. Secondly, only about a quarter of the indicators are those used in *Education at a glance*. The indicators have been developed to complement rather than replicate the OECD indicators.

Policy priorities

The key data indicators have been developed within a framework of policy priorities formulated by the European Commission and European Union member nations. Policy statements have stressed the importance of VET and highlight three broad priorities at European Union level (Seyfried 2001). They are to:

- improve the employability of the workforce
- improve the consistency between training supply and demand
- improve the access to vocational training, with particular emphasis on the most vulnerable groups.

Within these overarching areas, a further nine specific priorities have been specified (West 1999). They are to:

- improve lifelong access to education and training for all citizens
- encourage the acquisition of qualifications and competences

- ✧ encourage the acquisition of qualifications and competences that promote innovation
- ✧ promote the development of linguistic competences
- ✧ promote mobility
- ✧ promote investment in training
- ✧ support transition of young people into work
- ✧ reduce social exclusion
- ✧ improve the quality of training.

The framework of policy priorities helped shape the development of the key indicators for measurement of the current state of VET in member countries, and the level of progress towards achieving the specific policy goals.

The indicators

The original indicators employed by the European Commission were included in the publication *Key data on vocational training in the European Union* (European Commission 1997). They were grouped into five areas:

- ✧ demographic trends, educational attainment and the labour market

This section presented indicators of how success in the labour market and rates of unemployment are related to the levels of education and training attained by the workforce. Data were drawn mainly from demographic statistics and the results of the European Labour Force Survey. The indicators included:

- age structure of the working population
- educational attainment by age
- employment rates by educational attainment and sex
- employment rates by educational attainment and age
- unemployment rates by educational attainment and sex
- percentage of young people aged 16–18 in education.

- ✧ initial vocational education and training programs

Data in this area provided a statistical description of the initial vocational training programs in each European country. The data were drawn largely from the Vocational Education and Training Data Collection survey and included information on the length of programs and participation rates. Indicators included:

- proportion of students in VET by program (ISCED 3)
- participation rates of 15–19-year-olds
- participation rates of 20–24-year-olds
- distribution by age group
- distribution by gender
- participation by where initial VET takes place
- participation by duration of initial VET programs
- distribution by International Standard Classification of Education level
- participation in programs providing access to higher levels of study.

- ✧ continuing vocational training in enterprises

The indicators in this section focus on the number and proportions of enterprises offering training, the type of training they offer, the subjects taught in training courses, and costs of training. Data are obtained from the survey of continuing vocational training. Indicators are:

- enterprises offering continuing vocational training
- enterprises offering continuing vocational training by size

- enterprises offering continuing vocational training by sector
- enterprises offering continuing vocational training by type of program
- training time by subjects of continuing vocational training
- external training hours by type of training provider
- costs of continuing vocational training courses as a percentage of total labour costs of enterprises
- average costs per participant in purchasing power standards
- participation rates in continuing vocational training by enterprise size
- average time spent on continuing vocational training courses by enterprise size
- participation rates in continuing vocational training courses by sector
- average time spent by participants on continuing vocational training courses by sector
- employees participating in continuing vocational training courses
- average time per participant in continuing vocational training
- participants in continuing vocational training courses by occupation.

✧ self-employed: participation in training in the past four weeks

The continuing vocational training survey did not include small businesses (those with less than ten employees). This area on the self-employed was included to redress their exclusion from the continuing vocational training survey. The training experiences of the self-employed are compared to those of other employees giving attention to levels of educational attainment, occupation and the sectors in which they are employed. The data were derived from the European Labour Force Survey. Indicators included:

- distribution of self-employed and employees by sector
- distribution of self-employed and employees by occupation
- training in the past four weeks by educational attainment
- training in the past four weeks by occupation
- training in the past four weeks by age
- training in the past four weeks by sex.

✧ the European Community programs and initiatives

Information presented in this section was Europe-specific. It related to the European Community programs and initiatives financed through the European Social Fund and the Leonardo da Vinci Program designed to promote vocational training.

Indicators of young people's training

In addition to the more global comparisons of VET across European Union nations, the European Commission developed an indicator framework for evaluation of the effectiveness of VET in meeting the training needs of young people. The main publication, *Young people's training*, contains indicators derived from many of the same sources as for the comparisons of all age groups. The indicators that are provided in addition to those listed above include (European Commission 1999):

✧ Apprenticeship

This is a set of indicators that portray apprenticeship systems in Europe, including measures of time spent in enterprises, salary level, equal opportunities, and financing. Indicators are:

- absolute numbers enrolled in apprenticeship programs
- percentage of VET participants enrolled in apprenticeship programs
- percentage of VET participants enrolled in apprenticeship programs by type of apprenticeship
- percentage of VET participants enrolled in apprenticeship programs by age and sex
- wages of apprentices.

✧ Participation in vocational education and training

This area includes information on participation in VET related to volume of participation, rates of participation, and the age of participants. Indicators include:

- participation in VET programs by age and International Standard Classification of Education level
- participation rates for 17-year-olds in VET programs for International Standard Classification of Education levels 2 & 3
- participation rates for 25–34-year-olds
- median age of participants in VET by program
- VET participation rate for 16–19-year-olds by status of head of household.

✧ Equal opportunities for men and women

This group of indicators presents the respective situation of males and females in VET in terms of level of program undertaken, place of training, continuing with training, and participation. They include:

- breakdown of VET participants by gender and International Standard Classification of Education level
- breakdown of VET participants by gender and venue of training
- percentage of VET participants enrolled in programs provided in formal training institutions by sex
- breakdown by gender of VET participants in programs that lead to higher streams of study by sex
- VET participation by age and sex.

European Union indicators for measuring effectiveness of VET

The list of indicators published by the European Commission has a strong focus on context, inputs and process. Many are descriptive and only a few provide indicators of effectiveness or impact. Missing are measures of outcomes. This has been addressed to an extent by a framework of indicators of effectiveness developed by West (1999) for the European Union. The focus in the scheme is on measuring outcomes of VET and the impact for individuals as well as for enterprises. This framework is divided between initial and continuing VET. It also separates individual and enterprise-level measures. West identified the existing surveys used by the European Commission as the main data sources, in addition to school leaver and graduate destination surveys.

The scheme included the following outcome indicators at the individual level:

✧ Initial VET

- dropout rates (by age, sex and program)
- percentage of participants gaining qualifications (by age, sex and program)
- percentage of participants going on to a higher level of training
- percentage of those who obtain a job and retain that job for 3–6 months.

✧ Continuing VET

- dropout rates (by age, sex and program)
- percentage of participants gaining qualifications (by age, sex and program)
- percentage of participants gaining promotion (by age, sex and program)
- percentage of participants gaining a new job (by age, sex and program)
- percentage of participants going on to a higher level of training
- percentage of those who were not in the labour force, by training and labour force status after training
- percentage of participants by earnings.

Australia's ranking

Australia's education and training system has been examined in a range of international comparisons. The United States series of publications on international indicators in education, for example, provides information across a range of OECD indicators suggesting that, against other countries and US states, Australia's performance in education and training tends to vary depending on the level of education and the type of indicator (for example, National Center for Education Statistics 1996, 1997). In 1991, Australia ranked 14th of 17 countries in enrolments of 18-year-olds in upper secondary education. The ranking for enrolments in tertiary education of 18–21-year-olds was 4th. Alternatively, in terms of expenditure for all education levels as a percentage of gross domestic product, Australia ranked 11th.

The best-known source of comparison is in the OECD publication *Education at a glance*. According to O'Reilly (2002) the data presented in *Education at a glance 2001* suggest that in terms of education broadly, on most measures, Australia performs fairly well. In making this claim, O'Reilly points to an above-average general secondary education graduation rate, higher-than-average proportion of the adult population with university qualifications, the second highest rate among OECD nations of expected years of education, and the highest proportions of part-time students in tertiary education. This is true despite slightly below-average expenditure on educational institutions (compared to the OECD country mean).

However, does this assessment hold for the vocational education and training system? As this chapter reveals, data on VET reported in *Education at a glance* provide an inconclusive picture about the effectiveness of Australia's national VET system. This may be due partly to aspects of performance, but it is also due in part to issues associated with the data that make it difficult to arrive at an informed view. The chapter shows that a significant amount of activity in the sphere of VET is being reported in ways that do not promote meaningful comparisons. Much of the activity occurs at the interface of secondary school and tertiary education.

Comparing Australia and other OECD countries

At one level, the indicators reported in *Education at a glance* have the potential to provide valuable and insightful international comparisons of education and training. They are extensive, covering issues of transition, access, participation, completion, process, efficiency and outcomes. They also capture important concepts fundamental to an assessment of the effectiveness of systems. For example, on the issue of the role of VET in the initial transition (and pathways) from school to further study and work, comparisons are provided of activity and participation across single ages for the critical transition period, from 15 to 20 years of age. This permits an aggregate year-by-year assessment of the role of school and post-school education and training in the pathways of young people as they leave formal secondary schooling. However, on another level, the reporting in *Education at a glance* of VET activity reveals some limitations in classification and grouping that prevent accurate assessments of Australia's efforts against other countries. The limitations in reporting VET activity are partly related to the manner in which VET interfaces with the secondary school sector. These limitations are apparent in the reporting of data for both senior secondary level VET courses (ISCED 3B) and for transition rates from secondary schooling to tertiary VET

(tertiary-type B or ISCED 5B courses). They are also related to the classification and grouping of education and training activity. This problem also impacts somewhat on the reporting of rates of enrolment in general upper secondary courses (ISCED 3A courses).

Secondary school VET courses

Upper secondary enrolment patterns provide essential information on the nature of secondary school provision, its take-up and the role it plays in providing a springboard into tertiary courses (both higher education and vocational). However, the alignment of structurally diverse systems of secondary provision for the purpose of reporting participation rates in a comparable manner presents a challenge to the educational comparativist. This is a challenge that is approached in two distinct ways in *Education at a glance*.

In the first, the OECD reports upper secondary enrolments within three categories. The three categories are ISCED 3A (university preparatory), ISCED 3B (tertiary VET preparatory) and ISCED 3C (terminal or work preparatory). However, these categories are broad-brush divisions, designed to accommodate the diversity of models of upper secondary schooling delivery. Their usefulness is limited not only by their fit with individual national systems, but by the fit of the data required to support them.

In the reporting of Australian data on upper secondary curriculum activity, for example, enrolment shares are distributed only among the first and the last of these categories—ISCED 3A and ISCED 3C (see table 3 and figure 2). The implication is that senior secondary school programs in Australia are designed to articulate with only two post-school destinations—higher education and the workforce.

The upper secondary enrolment patterns reported by the OECD imply that there is no transition from schools leading into the tertiary VET sector. Yet the tertiary VET sector is an established destination for school leavers in Australia. It is estimated that this active and vigorous sector in Australia (TAFE institutes or tertiary destination ISCED 5B) welcomes 25% of school completers nationally (ABS 2002a). From the point of view of destinations then (the basis of the classification of activity into ISCED 3A/3B/3C), the enrolment shares reported in the OECD data are misleading (or, at best, incomplete).

Much of the VET activity of young people no longer in secondary schools is classified as ISCED 3C or upper secondary schooling that is terminal or workforce preparatory. Grouped in this category are those doing apprenticeships (many of four years' duration) and traineeships as well as a wide variety of short and long-duration TAFE certificates. Because of this classification, Australia has a comparatively high proportion of 19 and 20-year-olds defined as still enrolled in upper secondary rather than tertiary courses (OECD 2001, table C1.3, p.135). The inclusion in ISCED 3C of a wide range of courses—school-certificate, apprenticeship and traineeship training, TAFE certificate— prevents examination of the relative role of different types of education and training in initial transition.

Table 3 and figure 2 present an alternative approach to describing curriculum location. They also partition enrolments by program *orientation*—general, pre-vocational and vocational. In the case of this measure, there are no data reported at all for Australia, further obscuring the view of upper secondary curriculum activity in Australian schools as well as post-school education and training programs. Differentiating activity at this level (into general and vocational programs, for example) is a difficult task, possibly more so in Australia than other systems where the two types of activity are more clearly signposted and often delivered in different types of institutions.

However, it is also true that much VET activity is differentiated from mainstream non-VET activity in the reporting practices of state systems and their assessment authorities. Malley et al. (2000) report that approximately 130 000 students were enrolled in VET in schools programs in 1999 (the

reference year for the most recent OECD report). Yet this activity is unacknowledged in the OECD's report. These were programs comprising accredited training and were therefore distinguishable from non-VET activity at the system-level. The reporting of such data would support a view that it is therefore possible to make at least a basic distinction between programs of a general and those of a vocational orientation in the upper secondary curriculum.

Malley et al. (2000) also report data on enrolments in school-based apprenticeship programs and it is common practice for state boards of studies and other assessment authorities to differentiate such enrolments from other VET-in-schools enrolments and non-VET-in-schools enrolments generally. It would appear, then, at least theoretically possible to report not only the program orientation of upper secondary students in Australia but also the finer detail on what proportion of vocational students are enrolled in combined school and work-based programs. These data, provided for virtually all other OECD nations in table 3, are currently reported as missing for Australia.

A similar problem may be noted with table 4, which reports upper secondary graduation rates. Figures are not provided for those in ISCED 3C programs, largely due to difficulties in using a base graduation age because of the varying durations of different programs (up to four years) and because of the problem of double counting. It results in the non-reporting of all activity not relating to transition to tertiary-type A (higher education) courses.

The criteria for partitioning the senior secondary curriculum in this manner are not clearly reported in *Education at a glance*. Irrespective of this, the classifications and groupings make it difficult to arrive at a comparative assessment of how effectively the VET system is serving the school-age population as well as school leavers in Australia. In other words, Australia cannot really be ranked or compared in a meaningful or accurate way because of the shortcomings in the classifications and groupings used to report vocational education and training activity.

Transition from school to TAFE

The problems associated with the classifications of education and training activity are further highlighted when we turn to the OECD's reporting of access to and participation in tertiary education (figure 3 and table 5). A rate of entry to tertiary-type A courses of approximately 45% is reported for Australia. However, the rate of entry to tertiary-type B courses is not reported, largely because many post-school VET participants (those undertaking apprenticeships, traineeships and a wide variety of TAFE certificates) are classified as ISCED 3C (uppér secondary).

On the basis of figure 3, Italy (with a very small system of tertiary VET providers) has a higher transition rate from school to tertiary VET than does Australia (which has a large established system of tertiary VET providers). The problems again relate to classification and grouping. Most of the entry-level education in tertiary institutions in Australia is reported as ISCED 3C (upper secondary). The grouping of a wide variety of programs under this ISCED level makes it impossible to compare the role, importance and effectiveness of VET (and particularly different components of VET) in preparing young people in their transition from initial education to working life.

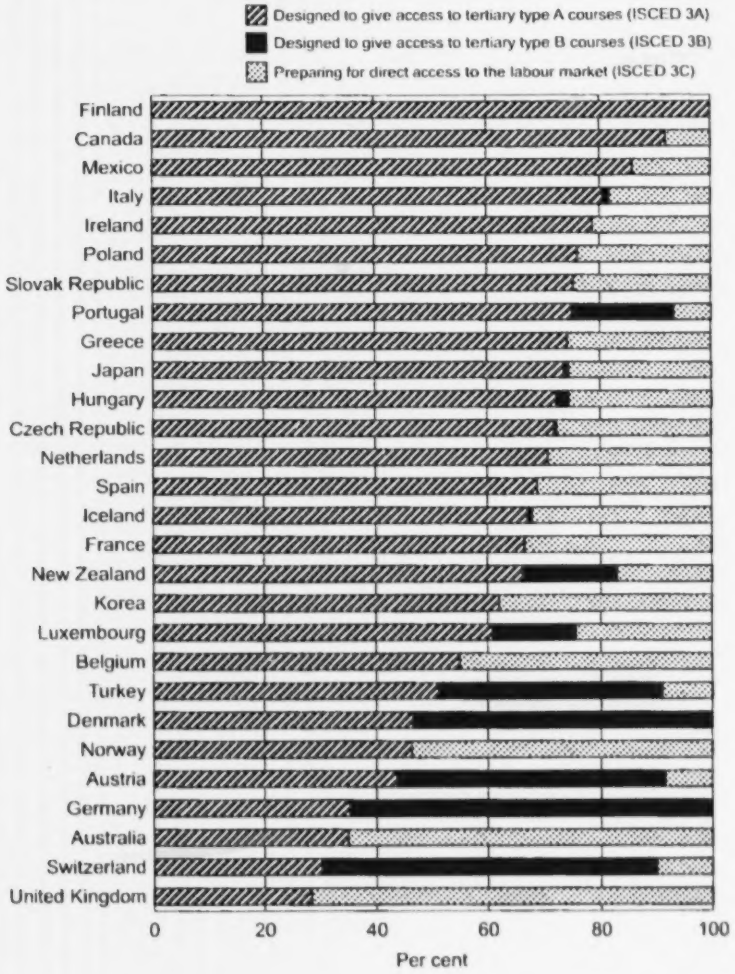
Table 3: Upper secondary enrolment patterns (1999)

	Distribution of enrolment by program destination			Distribution of enrolment by program orientation			
	ISCED 3A	ISCED 3B	ISCED 3C	General	Pre-vocational and vocational		
					Pre-vocational	*Vocational*	*Of which: combined school and work-based*
OECD countries							
Australia	35.0	a	65.0	m	m	m	m
Austria	43.6	47.8	8.6	22.1	7.3	70.6	35.8
Belgium	55.1	a	44.9	34.3	a	65.7	4.0
Canada	91.8	a	8.2	91.8	8.2	a	a
Czech Republic	71.8	0.5	27.7	19.8	0.5	79.7	27.3
Denmark	46.7	a	53.3	46.7	a	53.3	52.5
Finland	100.0	a	a	46.8	a	53.2	14.0
France	66.6	n	33.4	42.8	n	57.2	20.2
Germany	35.4	64.6	a	35.4	a	64.6	48.7
Greece	74.2	a	25.8	74.2	a	25.8	a
Hungary	72.2	2.2	25.7	34.5	54.5	11.0	11.0
Iceland	67.2	0.7	32.1	67.2	1.2	31.5	17.4
Ireland	78.7	a	21.3	79.4	20.6	a	x
Italy	80.6	1.2	18.2	35.3	1.2	63.5	a
Japan	73.6	0.8	25.7	73.6	0.8	25.7	a
Korea	62.1	a	37.9	62.1	a	37.9	a
Luxembourg	60.9	14.6	24.5	36.3	n	63.7	14.2
Mexico	86.0	a	14.0	86.0	a	14.0	a
Netherlands	70.7	a	29.3	33.4	a	66.6	a
New Zealand	66.3	16.7	17.0	m	m	m	m
Norway	46.4	a	53.6	46.4	a	53.6	x
Poland	76.0	a	24.0	33.9	a	66.1	m
Portugal	75.1	18.1	6.9	75.0	a	25.0	a
Slovak Republic	75.3	a	24.7	20.4	a	79.6	40.3
Spain	68.8	n	31.2	68.8	n	31.2	4.7
Sweden	46.8	a	0.4	49.9	a	47.3	m
Switzerland	30.3	59.6	10.1	34.6	a	65.4	56.8
Turkey	51.4	39.6	9.1	51.4	a	48.6	9.1
United Kingdom	28.4	a	71.6	33.3	x	66.7	x
United States	m	m	m	m	m	m	m
Country mean	**63.3**	**9.2**	**25.7**	**49.4**	**3.6**	**47.0**	**16.2**
WEI participants							
Argentina[1]	m	m	m	57.4	x	42.6	n
Brazil[1]	m	m	a	70.3	a	29.7	m
Chile[1]	57.8	42.2	a	57.8	a	42.2	0.5
China	100.0	a	a	43.4	x	56.6	x
Egypt	m	m	m	34.3	a	65.7	n
India	100.0	a	a	94.2	a	5.8	x
Indonesia	60.6	39.4	a	60.6	a	39.4	a
Israel	95.3	x	4.7	57.9	a	42.1	4.7
Jordan	93.8	a	6.2	74.5	a	25.5	n
Malaysia[1]	10.6	a	89.4	88.4	n	11.6	x
Paraguay[1]	83.7	a	16.3	83.7	a	16.3	a
Peru[1]	100.0	x	a	75.7	24.3	a	n
Philippines[1]	100.0	a	a	100.0	a	a	a
Russian Federation	56.3	n	43.7	100.0	n	n	n
Thailand	71.6	28.4	a	71.6	a	28.4	m
Tunisia	m	m	m	93.0	n	7.0	x
Uruguay[1]	92.3	a	7.7	81.0	a	19.0	x
Zimbabwe	4.6	a	95.4	m	m	m	m

Notes: m – data not available
a – data is not applicable because the category does not apply
x – data are included in another column or category
n – magnitude is either negligible or zero
1 – Year of reference 1998

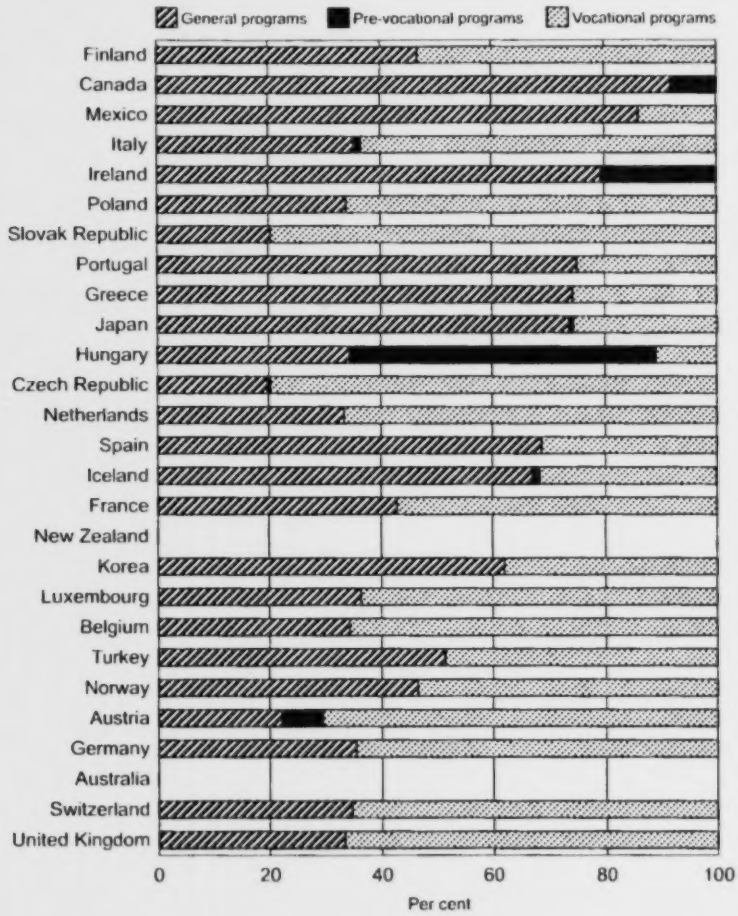
Source: OECD (2001, p.145)

Figure 2a: Upper secondary enrolment patterns (1999)



Note: Countries are ranked in descending order of the proportion in ISCED 3A programs.
Source: OECD (2001, table C2.1)

Figure 2b: Upper secondary enrolment patterns (1999)



Note: Countries are ranked in descending order of the proportion in ISCED 3A programs.
Source: OECD (2001, table C2.1)

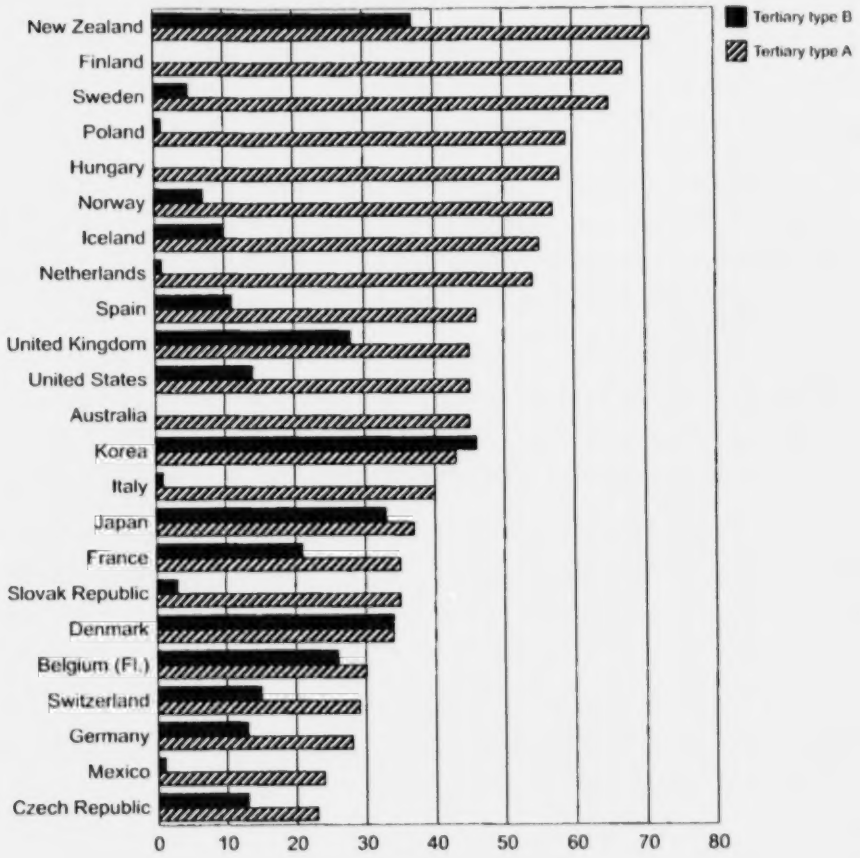
Table 4: Upper secondary graduation rates (1999)

	Total (unduplicated)			ISCED 3A (designed to prepare for direct entry to tertiary-type A education)		ISCED 3B (designed to prepare for direct entry to tertiary-type B education)		ISCED 3C (long) similar to duration of typical 3A or 3B programs		ISCED 3C (short) shorter than duration of typical 3A or 3B programs		General programs		Pre-vocational/ vocational programs	
	M+W	Men	Women	M+W	Women	M+W	Women	M+W	Women	M+W	Women	M+W	Women	M+W	Women
OECD countries															
Australia	m	m	m	66	72	m	m	m	m	m	m	m	m	m	m
Austria	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Belgium (Fl.)	83	82	85	60	63	a	a	23	21	13	17	33	38	63	64
Canada	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Czech Republic	52	44	59	47	56	n	n	n	n	5	4	13	15	43	49
Denmark	90	82	98	54	66	a	a	59	63	a	a	54	66	59	63
Finland	89	84	94	89	94	a	a	a	a	a	a	53	64	67	71
France	85	84	86	52	59	10	8	3	3	36	30	33	39	67	61
Germany[3]	92	90	94	33	36	59	58	a	a	a	a	33	36	59	58
Greece	67	58	76	59	62	a	a	20	16	a	a	59	62	20	16
Hungary	92	91	93	54	61	2	2	x	x	34	27	24	30	71	65
Iceland	82	79	84	54	65	n	n	30	17	14	15	54	65	43	32
Ireland[3]	86	79	94	89	97	a	a	4	4	a	a	78	85	15	16
Italy[2]	73	69	79	71	77	1	2	a	a	22	23	28	37	65	63
Japan	95	92	97	69	73	a	a	25	24	x	x	69	73	27	26
Korea	91	91	91	56	53	a	a	36	38	a	a	56	53	36	38
Luxembourg[1]	60	57	63	36	42	7	7	17	14	n	n	26	30	34	33
Mexico[1]	31	29	33	28	29	a	a	4	4	x	x	28	29	4	4
Netherlands[1]	92	88	95	66	73	a	a	26	22	a	a	35	39	56	56
New Zealand	m	m	m	65	70	19	23	15	17	x	x	m	m	m	m
Norway[1]	m	m	m	67	82	a	a	66	48	m	m	67	82	66	48
Poland[1]	m	m	m	68	78	a	a	a	a	29	22	30	41	69	59
Portugal	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
Slovak Republic	93	92	92	70	77	n	n	1	1	29	22	m	m	m	m
Spain	73	67	79	47	53	n	n	6	7	23	24	47	53	29	31
Sweden	74	71	78	74	78	a	a	n	n	a	a	41	45	33	31
Switzerland	83	86	81	23	28	48	36	12	17	a	a	m	m	m	m
Turkey	m	m	m	20	19	19	16	m	m	m	m	20	19	19	16
United Kingdom	m	m	m	m	m	m	m	m	m	m	m	m	m	m	m
United States	78	79	77	m	m	m	m	m	m	m	m	m	m	m	m
Country mean	**79**	**76**	**82**	**57**	**63**	**7**	**6**	**15**	**14**	**11**	**10**	**42**	**48**	**45**	**43**
WEI participants															
Argentina[3]	40	38	43	m	m	m	m	m	m	m	m	19	26	21	17
Brazil	44	39	50	m	m	m	m	m	m	a	a	26	29	21	23
Chile[3]	56	52	61	31	36	25	26	a	a	a	a	31	36	25	26
China	37	39	36	m	m	m	m	m	m	a	a	17	15	20	21
India	47	m	m	47	m	a	a	a	a	a	a	m	m	m	m
Indonesia	32	32	31	19	19	13	12	a	a	a	a	19	19	13	12
Israel	86	82	90	55	65	30	24	2	1	x	x	m	m	m	m
Jordan	73	69	77	69	76	a	a	4	1	a	a	55	63	17	14
Malaysia	62	49	76	8	11	a	a	53	63	a	a	60	74	2	1
Paraguay[3]	31	28	34	27	30	a	a	4	4	a	a	27	30	4	4
Peru	57	57	57	57	57	x	x	a	a	a	a	44	45	13	12
Philippines[3]	57	52	63	57	63	a	a	a	a	a	a	57	63	a	a
Thailand	65	54	76	49	59	16	16	a	a	a	a	49	59	16	16
Tunisia	34	m	m	30	32	3	m	a	a	3	m	30	32	4	m

Notes: m – data not available
a – data is not applicable because the category does not apply
x – data are included in another column or category
1 – Graduation rate may include some double counting
2 – Short 3C programs excluded
3 – Year of reference 1998

Source: OECD (2001, p.146)

Figure 3: Entry rates to tertiary education and age distribution of new entrants (1999)



Notes: Net entry rates for Type A and Type B programs cannot be added due to double counting; entry rate for type A and B programs calculated as gross entry rate; entry rate for type B programs calculated as gross entry rate

Source: OECD (2001, table C3.1)

Table 5: Entry rates to tertiary education and age distribution of new entrants (1999)

	Tertiary type B			Tertiary type A					
	Net entry rates			Net entry rates			Age at:		
	M + W	*Men*	*Women*	*M + W*	*Men*	*Women*	*20th percentile*	*50th percentile*	*80th percentile*
OECD countries									
Australia	m	m	m	45	37	53	18.3	19.0	27.1
Austria	m	m	m	m	m	m	m	m	m
Belgium (Fl.)	26	21	31	30	29	30	18.3	18.7	20.0
Canada	m	m	m	m	m	m	m	m	m
Czech Republic[2]	13	10	16	23	24	22	m	m	m
Denmark	34	24	46	34	32	36	21.1	23.2	29.8
Finland	a	a	a	67	58	77	19.8	21.5	26.6
France	21	21	20	35	29	42	18.3	18.9	20.2
Germany[3]	13	10	17	28	28	29	20.1	21.5	24.4
Greece	m	m	m	m	m	m	m	m	m
Hungary	n	n	1	58	53	64	19.2	20.8	25.9
Iceland	10	10	9	55	36	75	21.1	23.0	>40
Ireland	m	m	m	m	m	m	m	m	m
Italy	1	1	1	40	35	46	19.2	19.7	20.7
Japan[2]	33	22	44	37	46	28	m	m	m
Korea[2]	46	48	44	43	48	37	m	m	m
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	1	1	1	24	26	22	18.3	19.1	20.9
Netherlands	1	1	1	54	51	57	18.6	19.9	23.6
New Zealand	37	27	46	71	59	82	18.7	21.9	>40
Norway	7	7	7	57	44	71	20.0	21.6	28.7
Poland[2]	1	x	x	59	x	x	m	m	m
Portugal	m	m	m	m	m	m	m	m	m
Slovak Republic	3	1	4	35	35	35	18.6	19.5	21.3
Spain	11	11	11	46	39	53	18.4	19.2	21.8
Sweden	5	5	5	65	54	77	20.2	22.6	31.7
Switzerland	15	16	13	29	32	26	20.2	21.7	26.3
Turkey	m	m	m	m	m	m	m	m	m
United Kingdom	28	28	29	45	43	48	18.5	19.6	26.1
United States	14	13	15	45	42	48	18.5	19.5	26.7
Country mean	**15**	**13**	**17**	**45**	**40**	**48**			
WEI participants									
Argentina	26	16	37	51	45	57	19.8	21.6	25.7
Chile[2]	15	15	14	37	39	35	m	m	m
China[2]	7	x	x	6	x	x	m	m	m
Indonesia	6	6	7	11	13	9	18.9	19.7	20.7
Israel	27	25	30	49	43	55	21.5	23.7	27.4
Malaysia	10	11	9	13	11	15	19.5	20.4	21.0
Paraguay	1	1	1	m	m	m	m	m	m
Peru	18	15	21	15	x	x	m	m	m
Philippines	a	a	a	31	27	35	m	m	m
Thailand	20	20	21	35	32	38	22.3	m	m
Tunisia	4	4	3	19	17	20	m	m	m
Uruguay	17	8	26	26	20	32	m	m	m

Notes: m – data not available
a – data is not applicable because the category does not apply
x – data are included in another column or category
n – magnitude is either negligible or zero
1 – 20/5/80 per cent of new entrants are below this age
2 – Entry rate for type A and B programs calculated as gross entry rate
3 – Entry rate for type B programs calculated as gross entry rate

Source: OECD (2001, p.155)

Summary

It would seem from the data reported in *Education at a glance* that a significant amount of activity in the sphere of VET is being reported in ways that make both comparison and evaluation of the role and effectiveness of VET quite difficult. Much of this activity occurs at the interface of secondary school and tertiary education and is therefore crucial to current debates over the nature of the upper secondary curriculum and post-compulsory pathways. Without accurate and comparative data, policy-makers cannot fully engage in a debate on the nature of these pathways. Teese, Burke and Marginson (1996) have argued that transition data are essential to this debate, that 'Australian planners need to know about transition rates for school leavers, not simply aggregative measures of age participation'. What then are the reasons for the way that Australian data on VET are reported?

It has been widely acknowledged that a central difficulty with reporting comparative international data is the diversity of the national systems' approaches to education (Teese, Burke & Marginson 1996; Schleicher 1995). Differences in structures of provision and in the pathways between sectors make comparability difficult. Differences in the way in which national systems collect and categorise data also contribute to this problem.

While over time the OECD has attempted to increase the sensitivity of measures of education and training activity, particularly in the school and tertiary education interface, for Australia a significant amount of activity in the sphere of VET is being reported in ways that make comparisons misleading. The lumping of a wide variety of VET in schools, post-school VET and school certificate programs in one category—ISCED 3C—is a case in point. International comparisons involve assumptions of comparability and operate on conventions of equivalence. The ways in which country data are being gathered and tabulated, including definitions and classifications, make useful and meaningful comparisons of the effectiveness of VET difficult to achieve.

A new framework of indicators

Basic requirements of an indicator framework

The construction of a framework of indicators for comparing the performance of VET in Australia with VET internationally must meet a number of basic requirements. These are listed briefly below:

- At a logistical level, data must be regularly reported against the selected indicators by international or national agencies and be readily available. There is little point in developing a framework which cannot be serviced through already operating statistical collection processes.
- At a context level, up-to-date documentation on delivery structures for education and training as a whole as well as specifically for VET needs to be available. Diagrams of structures (such as those included in *Education at a glance)* do not necessarily present an accurate picture of current arrangements and require interpretation.
- At a processing level, the ways in which country data are gathered and tabulated, including definitions and classifications, need to be transparent. International comparisons involve assumptions of comparability and operate on conventions of equivalence which cannot be tested in the absence of knowledge about how data are derived and transformed. Formal definitions used to support tables are not a substitute for this knowledge.
- At an application level, the selection of indicators should be relevant to key policy objectives rather than simply being descriptive and analytical.

In this chapter, a selection of indicators which are mainly already available is made from two international collections. Drawing on these collections ensures that the first requirement listed above—the logistical—can be satisfied without extensive local work to adapt or extract data from national sources. The first collection is the OECD, *Education at a glance*, while the second is the European Commission, *Key data on vocational training in the European Union* series. There are a number of indicators currently not available from the two sources. Further work is needed to see whether these can be sourced from primary survey data available in different countries.

Drawing many of the established indicators from the two main series meets in part the logistical requirement and to some extent also, but not completely, the context requirement. To assist with this latter requirement, the users of the proposed framework need to have available the series of national reports produced by the OECD as well as other studies, especially those produced by governments or researchers in particular member countries.

Meeting the processing requirement is more complex. Interpretation of apparent inter-country differences on key performance indicators rests on confidence in the validity of the comparisons, and consequently, therefore, on a knowledge of how data are gathered, tabulated and communicated across agencies and into publications. One solution to the problem of assuring comparability lies in making the statistical processes more transparent through inter-country collaboration and networking; for example, by forging ongoing links between the National Centre for Vocational Education Research (in Australia) and organisations such as the Centre for Research on Qualifications (in France) or the Federal Institute of Vocational Training (in Germany). Part of the solution, too, lies in the effective management of data collection, transmission and verification processes within Australia and in Australia's links with overseas agencies.

Finally, with regard to application, one way of testing the framework's potential usefulness to VET policy in Australia is to group selected indicators under key headings of policy to assess how well each head of policy is covered by the indicators and what further work may be required. This is the main purpose of this chapter.

The VET policy framework in Australia

The ANTA Ministerial Council has adopted a mission statement for VET which contains five major objectives:

- ✧ equipping Australians for the world of work
- ✧ enhancing mobility in the labour market
- ✧ achieving equitable outcomes in VET
- ✧ increasing investment in training
- ✧ maximising the value of public VET expenditure.

These are set out in *A bridge to the future: Australia's national strategy for VET, 1998–2003* (ANTA 1998).

Each of these objectives is supported by defined strategies for achieving them. For example, equipping Australians for the world of work (to quote from the strategic plan) calls for 'the establishment of numerous and diverse pathways which encourage and enable people to undertake VET programs and which meet current and future industry skill needs'. Both objectives and strategies to underpin them are relevant to the selection of appropriate international indicators.

Indicators

In this chapter, recommended indicators are linked to national VET objectives so that their strategic relevance is highlighted. They are also linked to the key classifications or themes for vocational education and training currently proposed by the Australian Bureau of Statistics in its outline of a framework for education and training statistics: context, participation, outcomes, outputs, resources (ABS 2002b). The classifications or themes are provided in brackets with each policy objective. In addition to policy objectives, as with all ongoing exercises in international comparisons, a basic requirement is that the framework includes a set of indicators which enables the social and economic context of each country to be compared. These context indicators are listed first.

Context indicators (context)

1.1 Educational attainment by age and sex (OECD)

1.2 Labour force participation by educational attainment and gender (OECD)

1.3 Unemployment rates by age, sex and level of qualification (European Union)

1.4 Gross domestic product per capita (added)

Equipping Australians for the world of work (participation)

(A) All VET

2.1 Participation rates by age (European Union)

2.2 Participation rates by gender (European Union)

2.3 Initial vocational education and training, by program (not available)

2.4 Enrolment in vocational education and training, by age group and enrolment status (OECD)

(B) School-based VET

2.5 Participation in school-based VET as a percentage of all students (European Union)

(C) Transition

2.6 Transition activities at ages 15, 16, 17, 18, 19 and 20 (not available)

2.7 Transition activities at ages 15, 16, 17, 18, 19 and 20, by gender (not available)

(D) Apprenticeships

2.8 Percentage of VET participants in apprenticeships (European Union)

2.9 Distribution of VET participants in apprenticeships by gender (European Union)

2.10 Distribution of VET participants in apprenticeships by gender and field of training (not available)

(E) Initial VET

2.11 Education and work, by age (not available)

2.12 Entry rates to study and training, by age (not available)

2.13 Participation by where initial VET takes place (European Union)

2.14 Duration of initial VET programs (European Union)

2.15 Participation in programs giving access to higher study (European Union)

Enhancing mobility in the labour market (participation)

(A) Continuing VET

3.1 Participation in continuing education and training, by age group (European Union)

3.2 Average duration of training undertaken, by age group (European Union)

3.3 Participation in continuing education and training by educational attainment (European Union)

3.4 Training time by educational attainment (European Union)

3.5 Participation in continuing education and training by labour force status (European Union)

3.6 Training time by labour force status (European Union)

3.7 Participation by adults aged 25–64 in continuing education and training by gender

(B) Workplace training

3.8 Participation in job-related continuing education and training by labour force status (European Union)

3.9 Average duration of training undertaken by employed adults aged 25–64 in continuing education and training

3.10 Participation rates in continuing education and training by industry and size of enterprise (European Union)

3.11 Participation by employed adults aged 25–64 in continuing education and training by occupation

3.12 Participation by adults aged 25–64 in continuing education and training by gender

3.13 Participation by place where training courses were taken

(C) Adult education

3.14 Participation in adult and community education, by age (not available)

Achieving equitable outcomes (outputs and outcomes)

(A) Access for equity groups

4.1 Participation in VET by gender, age and program (not available)

4.2 Participation in VET by region, age and program (not available)

4.3 Participation in VET by socioeconomic status and program: 15–29-year-olds (not available)

(B) Outcomes indicators

4.4 Completion rates by program (not available)

4.5 Dropout rates by age, sex and program (not available)

4.6 Percentage of participants gaining qualifications (by age, sex and program) (not available)

4.7 Percentage of participants going on to a higher level of training (not available)

4.8 Percentage of those who were not in the labour force, by training and labour force status after training (not available)

4.9 Percentage of unemployed participants in work six months after training (not available)

4.10 Transition from school to further study and work (OECD)

4.11 Earnings and educational attainment (OECD)

Increasing investment in training (resources)

5.1 Current public educational expenditure as a percentage of gross domestic product (OECD)

5.2 Current public educational expenditure as a percentage of total public expenditure (OECD)

5.3 Current public expenditure per student (OECD)

5.4 Current public expenditure per student as a percentage of gross domestic product (OECD)

5.5 Distribution of current expenditure on education (by type of education and training) (not available)

5.6 Relative proportions of public and private investment in educational institutions (OECD)

5.7 Sources of funds for vet (OECD)

Maximising the value of public VET expenditure (outputs)

This objective requires relating expenditure to publicly funded outputs, such as contact hours delivered. There appear to be no internationally reported indicators under this general heading, and those for Australia are still in the course of development.

6.1 Cost per contact hour

6.2 Cost per completion

Applying the framework

This chapter presents an application of the indicators and the indicator framework. Using a variety of sources, the aim is to apply the indicators identified for this study in order to establish whether it is possible to make an assessment of how effectively the VET system in Australia is working in each of the policy areas by comparison with systems in other countries.

The availability and accessibility of data remain issues. The data used in this chapter are from secondary sources, involving comparisons already published in available reports or documents. This means that all of the comparisons are based on classifications and comparisons developed in other work and do not necessarily provide adequate detail needed for a comparative evaluation of the effectiveness of national VET systems. For example, the comparisons on transition from school, derived mainly from the OECD, provide age-by-age analysis of broad participation in education and training that does not separate participation in VET from higher education or other forms of education and training. Further work is needed using primary sources of data rather than secondary sources—work beyond the scope of this report—to examine the extent to which the indicators can be developed to more effectively capture the role of VET in the processes of transition from school. Primary sources for this purpose could include results from national surveys of education and training or the labour force undertaken regularly in countries such as Canada, the United States, and European Union members as well as in Australia.

Uniformity in both the breadth of coverage and the points of time involved also raise problems. While generally true within tables, the figures presented in different indicators are not necessarily from the same period of time. For example, some of the tables providing information on initial VET relate to 1994, while those on continuing VET participation relate to more recent years. Furthermore, while many of the tables provide information on the same countries, this is not true of all tables. The number of countries included varies depending on the availability of information for comparison. Further work examining these issues in relation to primary sources of data is required.

Not all of the tables presented in this chapter provide information on Australia. Further work is needed to establish whether, in tables missing data on Australia, the data can be sourced or whether it needs to be collected.

It is also important to note that comparisons should include profiles of the organisation and structure of VET systems, qualifications and training. This should be more than the simple framework of education (primary, secondary, tertiary) charts which are sometimes provided in international comparisons. Where possible, the profiles need to describe the programs and the distributions of participants in ways that reflect the inherent logic and workings of the structure and organisation of each system. A good example is provided in the European Commission's report *Young people's training: Key data on vocational training in the European Union* (European Commission 1999). In the report, separate country-by-country profiles of VET programs are provided, including information on duration, population participation rates and links between programs and other forms of education and training. The profiles give meaningful insights into the range of ways in which VET systems are organised and function. They facilitate better

understandings of both the different types of VET systems (for example, employment-driven, state-regulated institutional, school-based) and differences in cross-country comparisons of VET.

Application of the indicator framework begins with the context indicators.

Context indicators

The purpose of the context indicators is to provide data on national demographic and labour market situations which have important implications for the development and impact of vocational education and training. Context indicators provide information on current levels of educational attainment and on how success in the labour market and rates of unemployment are related to the levels of education and training attained by the workforce. For populations and workforces marked by lower levels of educational attainment, there may be a high demand for continuing training and lifelong learning. It may also place significance on high-quality initial vocational education and training, and training providing transferable skills which are the basis for lifelong learning.

Data in this area of indicators are drawn mainly from published comparisons provided by the OECD. Similar comparisons are provided by a range of agencies including UNESCO, the statistical offices of the European Union, and the International Labour Organisation (ILO).

Indicator 1.1 shows that in 1999, in Australia, 65% of those aged 25–34 had an educational level corresponding to at least upper-secondary, compared to an average of 72% among other countries. Approximately 9% of Australians aged 25–34 had tertiary non-university qualifications as a minimum against an 8% country mean.

It is not possible using Indicator 1.1 to identify accurately the proportion of the population that holds post-school vocational education and training qualifications as their highest level of attainment. The main reason is that in OECD classifications, apprenticeship and related qualifications for Australia are included as upper-secondary (ISCED 3C/B).

Educational attainment has a major effect on patterns of employment. Over recent decades, labour market changes in many countries have seen increases in the demand for individuals with post-school qualifications. Accompanied by higher levels of unemployment among those with lower levels of educational attainment, it has intensified the risks of low attainment. Indicators 1.2 and 1.3 reflect these patterns. Across most countries, labour force participation is stronger among those with higher level qualifications. Conversely, unemployment rates are lowest among those with the highest levels of educational attainment. These patterns apply to both males and females, although labour force participation is not always consistent for females who have lower levels of participation on average than males.

The strength of the relationships vary by country. While there is an 18 percentage point gap for males and a 31-point gap for females in labour force participation between those without upper secondary school attainment and those with university qualifications in the United States, the gaps are 14 and 19 points respectively for Australia.

Gross domestic product is an aggregate measure of the value of goods and services produced in a country. It is a measure of a country's or state's productive capacity or wealth. Countries or states with equal gross domestic product can have very different numbers of inhabitants, however. Gross domestic product per capita provides a measure of the resources available to a country or state relative to the size of its population. Countries or states with large gross products per capita generally are better able to provide educational services for their residents.

Indicator 1.4 shows that, among the different nations, the United States had the highest gross domestic product per capita in 1999, $33 836, which was over $8000 more than the rate for

Australia (based on purchasing power parities). Yet, among the listed countries, the rate for Australia was within the top one-third of countries based on the highest rates of GDP per capita.

Table 6: Educational attainment, by age (1999) – Indicator 1.1

	Level of educational attainment																			
	Less than upper secondary					Upper secondary					Tertiary non-university					Tertiary university				
	Age					Age					Age					Age				
	25–64	*25–34*	*35–44*	*45–54*	*55–64*	*25–64*	*25–34*	*35–44*	*45–54*	*55–64*	*25–64*	*25–34*	*35–44*	*45–54*	*55–64*	*25–64*	*25–34*	*35–44*	*45–54*	*55–64*
Australia	43	35	41	45	56	30	36	30	27	27	9	9	10	10	7	18	20	19	18	10
Austria	26	17	22	31	41	63	70	66	58	53	5	6	5	5	2	6	7	7	6	4
Belgium	43	27	39	50	64	31	39	33	27	21	14	18	15	12	8	12	16	13	11	7
Canada	21	13	17	22	38	40	40	43	40	34	20	24	22	18	14	19	23	18	20	14
Denmark	20	13	20	21	30	53	58	52	52	51	20	19	22	22	15	7	10	6	5	4
Finland	28	14	18	33	54	41	48	47	38	26	17	22	20	15	11	14	16	15	14	9
France	38	24	35	43	58	41	45	44	39	30	10	16	11	8	5	11	15	10	10	7
Germany	19	15	15	19	27	58	63	59	57	53	10	9	11	10	10	13	13	15	14	10
Greece	50	29	42	58	76	32	45	37	27	15	6	9	7	4	3	12	17	14	11	6
Iceland	44	36	41	47	60	33	37	34	33	28	5	5	5	5	3	18	22	20	15	9
Ireland	49	33	44	59	69	30	38	34	25	20	10	13	11	9	6	11	16	11	7	5
Italy	na	na	na	na	na	33	45	39	27	16	x	x	x	x	x	9	10	11	10	5
Luxembourg	44	39	43	48	59	37	40	40	31	29	7	8	6	6	5	12	13	11	15	7
Netherlands	na	na	na	na	na	na	na	na	na	na	2	2	3	2	2	20	23	22	19	15
Norway	15	6	11	21	na	58	61	60	54	na	2	2	3	2	n	25	31	26	23	18
Portugal	79	70	79	85	89	11	18	11	6	5	3	3	3	3	2	7	9	7	6	4
Spain	65	45	59	75	87	14	22	18	10	4	6	11	7	3	2	15	22	16	12	7
Sweden	23	13	19	26	39	48	55	50	44	39	16	21	17	14	10	13	11	14	16	12
Switzerland	18	11	16	21	28	58	63	57	56	54	9	9	11	9	7	15	17	16	14	11
Turkey	na	na	na	na	na	15	18	16	10	7	x	x	x	x	x	7	8	7	8	5
United Kingdom	38	34	37	40	47	37	39	37	36	34	8	8	9	8	7	17	19	17	16	12
United States	13	12	12	12	19	52	50	52	49	53	8	9	9	9	5	27	29	27	30	23
Country mean	**38**	**28**	**34**	**42**	**55**	**40**	**47**	**43**	**38**	**31**	**8**	**9**	**8**	**7**	**5**	**14**	**16**	**15**	**13**	**9**

Notes: na – data not available

x – data are included in another column or category

Source: OECD (2001)

Table 7: Labour force participation rates, by level of educational attainment and gender (1999) – Indicator 1.2

		Less than upper secondary	Upper Secondary	Tertiary type B	Tertiary type A	All levels
Australia	Men	79	89	91	93	86
	Women	54	66	81	73	63
Austria	Men	71	86	89	94	84
	Women	48	68	82	84	63
Belgium	Men	71	88	92	93	82
	Women	42	70	84	86	62
Canada	Men	74	88	91	90	86
	Women	48	73	80	84	72
Denmark	Men	74	88	93	93	87
	Women	60	80	88	91	77
Finland	Men	70	86	88	93	83
	Women	64	78	86	90	77
France	Men	77	89	92	90	85
	Women	58	76	84	83	70
Germany	Men	76	84	88	92	84
	Women	47	70	82	83	66
Greece	Men	82	89	87	92	86
	Women	41	57	81	84	53
Iceland	Men	96	96	99	99	97
	Women	84	84	98	90	86
Ireland	Men	81	92	93	95	87
	Women	38	63	81	80	55
Italy	Men	75	86	x	92	81
	Women	33	66	x	81	48
Luxembourg	Men	77	87	90	92	84
	Women	41	60	81	76	54
Netherlands	Men	78	88	91	92	86
	Women	45	72	83	84	64
Norway	Men	81	90	98	93	90
	Women	59	81	93	89	80
Portugal	Men	89	91	93	97	90
	Women	69	82	88	92	73
Spain	Men	82	91	93	90	86
	Women	39	68	78	84	52
Sweden	Men	80	88	88	94	87
	Women	67	84	86	92	81
Switzerland	Men	91	94	96	97	94
	Women	63	74	88	81	73
United Kingdom	Men	67	88	92	93	86
	Women	52	76	86	88	74
United States	Men	74	87	90	92	87
	Women	50	72	82	81	73
Country mean	**Men**	**76**	**86**	**89**	**90**	**84**
	Women	**49**	**67**	**78**	**79**	**62**

Note: x – data are included in another column or category
Source: OECD (2001)

Table 8: Unemployment rates, by level of educational attainment and gender – Indicator 1.3

		Less than upper secondary	Upper secondary	Tertiary type B	Tertiary type A	All levels
Australia	Men	9.2	5.2	5.0	2.9	6.1
	Women	7.6	5.4	4.7	1.8	5.4
Austria	Men	8.0	3.4	2.0	1.9	3.9
	Women	6.0	4.0	2.1	2.3	4.3
Belgium	Men	10.0	4.6	2.6	2.0	6.0
	Women	15.6	8.3	3.6	4.4	8.8
Canada	Men	10.7	6.7	4.4	3.9	6.4
	Women	10.3	6.5	4.5	4.1	6.0
Denmark	Men	6.8	3.3	2.4	3.1	3.6
	Women	7.2	5.1	2.7	6.7	5.0
Finland	Men	12.0	9.3	3.7	2.9	8.1
	Women	14.4	9.8	7.0	4.3	9.3
France	Men	14.1	7.2	5.7	5.0	9.0
	Women	16.7	12.0	6.6	7.6	12.3
Germany	Men	17.7	8.4	4.9	4.3	8.4
	Women	14.1	9.4	7.0	5.1	9.5
Greece	Men	5.5	6.6	6.6	4.8	5.9
	Women	13.7	17.3	10.3	10.3	14.1
Iceland	Men	1.6	0.5	n	0.2	0.7
	Women	2.8	1.9	1.3	1.0	2.1
Ireland	Men	11.7	4.2	2.5	2.9	7.4
	Women	11.4	4.8	3.0	3.9	6.5
Italy	Men	7.8	5.7	x	4.9	6.7
	Women	16.6	11.1	x	9.3	13.0
Luxembourg	Men	2.8	0.8	n	0.8	1.4
	Women	5.0	1.7	2.3	1.3	2.8
Netherlands	Men	3.6	1.4	1.3	1.5	2.1
	Women	6.7	3.6	1.7	2.1	4.1
Norway	Men	3.4	2.2	1.6	1.6	2.2
	Women	2.4	2.5	1.2	1.4	2.1
Portugal	Men	3.9	4.1	2.4	3.1	3.8
	Women	4.6	6.2	1.4	2.4	4.5
Spain	Men	10.5	7.8	6.8	6.9	9.2
	Women	22.8	19.8	20.6	14.6	20.1
Sweden	Men	8.5	6.7	5.6	3.8	6.5
	Women	9.7	6.3	3.8	2.2	5.8
Switzerland	Men	4.1	2.3	x	1.3	2.2
	Women	5.7	2.4	x	2.9	3.1
United Kingdom	Men	12.7	5.3	3.8	2.6	5.5
	Women	7.3	4.1	1.8	2.7	4.1
United States	Men	7.0	3.9	2.6	2.0	3.5
	Women	8.8	3.6	2.9	1.9	3.5
Country mean	Men	8.2	4.7	3.9	2.9	5.1
	Women	9.1	6.7	4.4	4.0	6.4

Notes: n – data not available

x – data are included in another column or category

Source: OECD (2001)

Table 9: Gross domestic product per capita, 1999 (expressed in US dollars) – Indicator 1.4

Country	Based on current exchange rates	Based on current purchasing power parities
Australia	21 432	25 590
Austria	25 948	24 646
Belgium	24 347	24 845
Canada	20 822	26 424
Czech Republic	5 156	13 342
Denmark	33 124	27 073
Finland	25 046	22 723
France	23 764	22 067
Germany	25 729	23 819
Greece	11 848	15 140
Hungary	4 790	11 275
Iceland	31 139	26 338
Ireland	24 943	25 404
Italy	20 479	23 247
Japan	34 313	24 628
Korea	8 685	16 059
Luxembourg	44 360	41 356
Mexico	4 961	8 447
Netherlands	24 906	25 923
New Zealand	14 376	18 629
Norway	34 277	28 133
Poland	4 014	8 650
Portugal	11 438	16 703
Slovak Republic	3 653	10 947
Spain	15 220	18 215
Sweden	27 256	23 017
Switzerland	36 247	28 672
Turkey	2 807	6 335
United States	33 836	33 836

Source: OECD (2001)

Equipping Australians for the world of work (participation)

An important measure of the strength of a vocational education and training system is the role it plays in equipping young people with the skills needed for successful integration into the world of work. The indicators identified for this area are aimed at providing an assessment of the role of initial VET programs in each country.

Participation is influenced not only by demand—the number of persons who can and wish to enrol—but also by the supply—the number of places available. In terms of supply, initial vocational education and training programs are more available in some countries than in others. High participation can reflect a number of things, including a large public or private investment in education, a high valuation placed on participation, lack of alternatives, or an economy dependent on a highly trained workforce.

Indicators in this area are grouped into five sections. These include participation in:

- ✧ all VET
- ✧ school-based VET

- ✧ VET as part of transition from school
- ✧ apprenticeships
- ✧ initial post-school VET.

All VET

Indicator 2.1 shows that in most countries in 1994 participation in initial vocational education and training dropped off as secondary students made the transition from school, although participation rates were higher in some countries than others. For example, among 15–19-year-olds VET enrolment rates were generally much higher in Belgium, Germany, the United Kingdom and Sweden than in Australia. For 20–24-year-olds, however, the rate of participation is highest in Australia, suggesting that initial vocational education and training opportunities apply to older as well as younger age-groups.

Indicator 2.2 shows that initial VET engages more males than females. This is true for most of the listed countries except for Ireland, Finland and Belgium where the rates are roughly equal for males and females or in favour of females. The stronger representation of males in VET in Australia may reflect the role of apprenticeships which are an important component of initial VET and are male dominated.

Indicator 2.3 aims to provide comparisons of VET participation by program. This would offer a means of examining the role of varying program structures and offerings across different countries. It would be an important indicator for comparing the role and effectiveness of initial VET in the education and training systems and as part of transition processes in different countries. Published comparisons involving Australia are not available for Indicator 2.3. The European Commission does provide a set of comprehensive individual country member profiles of participants in VET programs (see European Commission 1999, pp.38–72). The profiles contain information on the name of each program, the age at which it usually starts, the most common duration, enrolment status, rates of participation, links with other courses (continuing or terminal), and the venue of training. The comparisons reveal the influence of three different sorts of VET systems operating in European countries: systems predominantly steered by the market (like the British system of National Vocational Qualifications); corporatist regulated systems (like Germany's dual vocational training system); and school-based training systems regulated by the State (as in France). Comparable information for Australia is likely to be available to allow similar profiles or portraits of VET participation by program.

Indicator 2.4 shows differences in the enrolment status of participants in tertiary non-university study by age group (in 1991). Study in non-university tertiary institutions typically provides occupationally oriented programs that may or may not prepare students to proceed to university degree programs. The percentage of individuals in different age groups who are enrolled in non-university tertiary study reflects: the role of non-university tertiary education in the training process; the duration of non-university higher education programs; and the classification of programs. In countries with high non-university tertiary enrollment rates, non-university tertiary training serves to provide training and certification for a large number of occupations, whereas in countries with low rates, similar training may occur at other levels in the system. This indicator displays the percentage of persons from certain age groups who are enrolled in public and private non-university higher education. Rates are provided for three age groups (18–21 years, 22–29 years, and 18–29 years) and are broken down by enrolment status (full time and part time). The indicator emphasises the high rates of part-time enrolments in Australia. Among 18–21-year-olds, 7.7% of VET participants in Australia were enrolled part time. This was substantially higher than any other country. Part-time enrolments were also higher in Australia than in other countries for the older age group.

School-based VET

Indicator 2.5 provides information on the role of VET in schools across different countries. It presents the percentages of school students in vocational education in 1994. It shows that in most European countries, vocational education in senior secondary schooling is dominant. There are more students enrolled in VET courses than in general education programs. In 1994 in Germany, for example, 78% of upper secondary education students followed a vocational path in school. The rates for Belgium, Italy and the United Kingdom were 68%, 70% and 58% respectively. In Australia, general education was more dominant with 76% of students enrolled in a general education program. Other countries that had low enrolments of school students in VET programs included Spain (41%), Greece (33%), Ireland (23%) and Portugal (23%).

VET as part of transition from school

Indicator 2.6 provides information on the role of VET in the transition of young people from school to work and further study. It presents education and training activities by single year of age for the ages 15 to 20. Activities for each age are separated into secondary school, post-secondary non-tertiary and tertiary. The rates are the percentage of each age group in each country participating in each activity. Examining the distributions of participation across activities should provide a sense of the role of post-school education and training in the transition experiences of young people as they age.

The figures show that compared with other countries, Australia has a higher participation in tertiary education for 18, 19 and 20-year-olds. Among 20-year-olds, it also has a higher than average participation rate in secondary education.

The indicator should provide valuable insights into the role of VET as young people make the transition from school. However, there are difficulties in using the OECD published figures because of problems in classification and an inability to examine separately the role of VET. For example, the comparisons do not separate participation in VET from higher education or other forms of education and training. In addition, the high rate of participation of 20-year-olds in secondary education for Australia (18%), reflects the inclusion of apprenticeships and similar training as upper secondary (ISCED 3B). Further work is needed using primary sources of data rather than secondary sources to examine the extent to which the activities covered in this indicator can be separated to more effectively assess the role of VET.

Apprenticeships

Apprenticeships are an important component of VET in many countries. They can provide both a pathway from school to work (in this sense a continuation of education and training) and an entry program that assists young people to enter the labour market. Indicator 2.7 compares across countries the percentages of VET participants aged 15–29 in apprenticeships. It shows that in Denmark and Germany, the majority of VET participants are undertaking apprenticeship training. The rates (85.7 and 65.7%, respectively) are substantially higher than in any other country. The rate for Australia—32.1%—is also larger than for many of the other listed countries and reflects the important role of apprenticeships in Australia's VET system.

Indicator 2.8 provides a breakdown of apprenticeship participation by gender. In most countries, including Australia, more men than women participate in apprenticeships. However, the rate of participation by women in Australia is one of the lowest among the listed countries. While about 16.5% of apprentices in Australia are women, the rates in Germany (40.9%), Denmark (44.7%), and Finland (76.8%) are substantially higher. This type of information should, ideally, be cross-referenced against fields of training. Such data are not yet available (Indicator 2.9).

Initial post-school VET

There is increasing importance placed on the acquisition of adequate and appropriate skills for better integrating young people into the workforce. There is also a need for reliable measurement of how successfully this is occurring. The indicators related to initial post-school VET are designed to present comparable information on the nature of post-school education and training programs which young people engage in and which form pathways to work.

Ideally, initial vocational education and training systems should provide young people with combinations of knowledge and skills that build on the platform of skills they have acquired in school and equip them with the skills needed to carry out tasks in particular occupations, and more broadly in different fields of work. Within and across countries different approaches are taken to the provision of VET programs, approaches which span training being provided almost entirely in an education or training institution to training taking place entirely at work. There are many approaches which involve a mixture of work-based and institutional training. Looking at the patterns of work and training provide insights into how well school, education and training and employment are integrated. Indicators 2.11 and 2.12 focus on these issues. Indicator 2.11 compares patterns of work and education, while Indicator 2.12 compares patterns of entry to post-school study and training. It differs from measures of broad participation by focussing on entry rates for new enrolments, by age. Published tables comparing countries on these measures were not available. Primary sources of data will need to be explored to see whether or not the comparisons are possible.

Table 17 provides information on levels of participation in initial VET by where the training takes place for the various European Union member countries. Table 18 reports on differences in the duration of VET programs. Table 19 compares participation in programs that give access to further education and training opportunities. In each of the tables, information is not available for Australia.

The data show that the most common mode of delivery in initial vocational education and training in the European Union are programs that take place entirely in an education/training institution. In Greece (92.4%), Spain (92.5%), Finland (100%), Portugal (90.9%) and the United Kingdom (53.9%) the majority of education and training is delivered in educational institutions. In a few countries (Denmark, Germany) the majority of training is shared between workplaces and educational establishments. Italy (25.8%) and the United Kingdom (12.1%) are among a few countries that have any formal vocational education training programs delivered only in the workplace.

The duration of training programs tends to vary by country (table 18). Long programs lasting more than four years are important in Denmark (41.7%), Greece (47.5%) and Luxembourg (46.6%). Programs of short duration lasting one year or less are important in Ireland (32.7%) and Finland (33.0%).

The extent to which programs that young people participate in articulate to higher levels of study and training also varies by country (see table 19). In Belgium, Denmark, France, Ireland, Finland, Sweden and the United Kingdom over 60% of participants are undertaking courses that give access to higher level vocational or general education studies. For several of these countries, the majority of participants have access only to higher level VET study.

(A) All VET

Table 10: Participation in initial vocational education and training, by age (1994) – Indicator 2.1

Country	Age 15–19	Age 20–24	Age 25–29
Australia*	20.9	17.9	m
Belgium	44.7	12.6	0.3
Denmark	20.6	11.8	1.8
Germany	39.7	14.1	1.8
Greece	20.6	7.9	1.0
Spain	21.6	6.8	0.2
France	27.7	8.5	0.6
Ireland	16.8	10.8	1.8
Luxembourg	27.6	10.0	0.4
Netherlands	29.5	11.3	2.1
Austria	55.1	1.5	0.2
Portugal	11.8	3.2	1.1
Finland	23.9	17.1	4.4
Sweden	37.1	1.4	0.3
United Kingdom	30.0	7.0	3.2

Notes: m – missing data
* – Australian data from ABS (1994)
Source: European Commission (1997)

Table 11: Distribution of participation in initial education and training, by gender (1994) – Indicator 2.2

Country	Male	Female
Australia*	58.1	41.9
Belgium	50.9	49.1
Denmark	55.8	44.2
Germany	54.3	45.7
Greece	57.3	42.7
Spain	53.4	46.6
France	54.7	45.3
Ireland	49.0	51.0
Italy	56.6	43.4
Luxembourg	56.0	44.0
Netherlands	58.0	42.0
Austria	56.6	43.4
Portugal	54.0	46.0
Finland	43.9	56.1
Sweden	56.0	44.0
United Kingdom	55.5	44.5

Note: * – Australian data from ABS (1994)
Source: European Commission (1997)

Table 12: Enrolment in tertiary non-university education, by age group, enrolment status, and country (1991) – Indicator 2.4

	Ages 18–21		Ages 22–29		Total ages 18–29	
Country	Full-time	Part-time	Full-time	Part-time	Full-time	Part-time
Australia	3.8	7.7	0.6	3.7	1.7	5.0
Belgium	14.0	0.0	1.3	0.0	5.5	0.0
Czechoslovakia	0.8	0.0	0.0	0.0	0.3	0.0
Canada	8.1	–	1.8	–	3.9	–
Denmark	0.7	0.0	1.2	0.0	1.0	0.0
Finland	4.6	0.0	3.6	0.0	3.9	0.0
France	8.1	0.0	1.2	0.0	3.5	0.0
Germany (West)	1.9	0.3	1.3	0.2	1.5	0.2
Hungary	4.7	0.2	0.7	1.2	2.0	0.9
Ireland	7.6	–	0.5	–	2.9	–
Netherlands	11.7	0.2	3.8	1.1	6.4	0.8
New Zealand	4.2	1.9	1.0	1.9	2.1	1.8
Norway	5.7	0.7	2.4	1.3	3.5	1.1
Portugal	3.7		1.4	–	2.2	–
Sweden	6.0	0.0	3.9	0.0	4.6	0.0
Switzerland	1.8	0.3	2.1	2.0	2.0	1.4
Turkey	1.1	0.0	0.2	0.0	0.5	0.0
United Kingdom	1.9	3.0	0.3	1.3	0.8	1.9
United States	7.5	4.8	1.3	3.1	3.4	3.7

Source: National Center for Education Statistics (1996)

(B) School-based VET

Table 13: Participation in school-based VET as a percentage of all students (1994) – Indicator 2.5

Country	General	Vocational
Australia*	76	24
Belgium	32	68
Denmark	46	54
Germany	22	78
Greece	67	33
Spain	59	41
France	47	53
Ireland	77	23
Italy	27	73
Luxembourg	37	63
Netherlands	30	70
Austria	22	78
Portugal	77	23
Finland	46	54
Sweden	37	63
United Kingdom	42	58

Note: * – Australian data is for 1997 and derived from Ministerial Council for Education, Employment, Training and Youth Affairs (1998)

Source: European Commission (1997)

(C) Transition

Table 14: Transition activities at ages 15, 16, 17, 18, 19 and 20—net enrolment rates in public and private institutions, by level of education and age, based on head counts (1999) – Indicator 2.6

		Age 15	Age 16			Age 17			Age 18			Age 19			Age 20	
	Graduation age at upper secondary education	Secondary	Secondary	Post-secondary non-tertiary	Tertiary	Secondary	Post-secondary non-tertiary	Tertiary	Secondary	Post-secondary non-tertiary	Tertiary	Secondary	Post-secondary non-tertiary	Tertiary	Secondary	Post-secondary non-tertiary	Tertiary
OECD countries																	
Australia	19	96	92	n	n	78	1	5	36	3	29	23	3	34	18	2	32
Austria	17–19	95	92	n	a	76	11	n	43	18	6	15	11	14	5	4	20
Belgium	18–19	100	98	n	n	95	n	1	44	6	35	22	6	46	12	4	47
Canada	18	98	93	n	n	75	6	3	29	10	15	8	9	30	7	6	33
Denmark	19–20	97	93	n	n	82	n	n	76	n	n	55	n	3	30	n	10
Finland	19	100	94	x	n	96	x	n	84	x	1	27	x	19	16	x	31
France	18–20	97	95	n	n	89	n	2	55	n	25	30	n	38	12	n	42
Germany	19	98	97	n	n	92	n	1	82	n	3	40	19	8	18	15	15
Greece	18	93	92	a	a	65	a	a	16	4	48	18	4	69	n	5	57
Iceland	20	98	90	a	a	77	a	a	67	a	n	63	a	1	36	n	11
Ireland	17–18	96	92	n	n	72	4	5	29	13	32	3	10	36	n	7	35
Italy	17–19	88	79	n	a	73	n	a	64	n	5	19	1	27	7	n	28
Luxembourg	18–19	92	87	a	a	81	a	a	65	n	m	42	n	m	24	1	m
Netherlands	18–19	102	107	a	a	91	n	4	64	n	16	29	n	26	25	1	31
Norway	19	100	94	n	n	93	n	n	87	n	n	42	n	14	18	1	28
Poland	18–20	88	90	a	a	89	a	x	73	n	1	29	6	25	13	8	30
Portugal	18	92	83	a	a	80	a	4	50	a	16	28	a	26	12	a	29
Spain	16–18	95	85	2	a	75	4	n	35	7	24	19	7	32	11	8	37
Sweden	19	97	97	a	n	97	a	n	95	n	n	31	2	13	22	2	22
Switzerland	18–20	97	90	n	n	84	n	n	77	1	1	54	3	6	24	4	13
Turkey	17	40	37	a	n	22	a	3	8	a	10	6	a	15	a	a	15
United Kingdom	16–18	103	84	x	n	71	x	2	29	x	24	16	x	33	13	x	34
United States	18	107	88	n	n	81	n	1	25	3	35	5	4	41	1	3	34
Country mean	**18**	**93**	**89**	**n**	**n**	**79**	**1**	**1**	**49**	**3**	**16**	**24**	**4**	**26**	**12**	**3**	**29**

Notes: m – data not available
a – data is not applicable because the category does not apply
x – data are included in another column or category
n – magnitude is either negligible or zero

Source: OECD (2001)

(D) Apprenticeships

Table 15: Percentage of VET participants in apprenticeship programs (1995–96) – Indicator 2.7

Country	Apprenticeship participation
Australia*	20.2
Belgium	4.4
Denmark	86.7
Germany	65.7
Spain	4.9
France	17.4
Ireland	14.1
Luxembourg	9.9
Netherlands	24.7
Austria	36.9
Finland	7.2
United Kingdom	6.5

Note: * – Australian data are for 1997 and were derived from ABS (1997)
Source: European Commission (1999)

Table 16: Distribution of apprenticeship participants, by gender (1995–96) – Indicator 2.8

Country	Male	Female
Australia*	88.2	11.8
Belgium	70.3	29.7
Denmark	55.3	44.7
Germany	59.1	40.9
Spain	68.1	31.9
France	71.1	28.9
Ireland	64.4	35.6
Luxembourg	57.8	42.2
Netherlands	67.3	32.7
Austria	68.5	31.5
Finland	23.2	76.8
United Kingdom	78.0	22.0

Note: * – Australian data are for 1997 and were derived from ABS (1997)
Source: European Commission (1999)

(E) Initial VET

Table 17: Participation by where initial VET takes place (1994)

Country	Workplace only	Workplace mainly, some in institution	Shared between locations	Mainly in institution, some in workplace	Institution only
Belgium		3.3	12.8	34.8	49.1
Denmark		0.4	91.2	8.4	
Germany			64.8		35.2
Greece			6.4	1.3	92.4
Spain	4.5			3.1	92.5
France			22.4	72.3	5.4
Ireland	0.4	11.2	5.2	16.8	66.5
Italy	25.8			6.3	67.9
Luxembourg	4.9		18.2		76.9
Netherlands	5.3	27.7		58.4	8.6
Austria		45.0	3.9	3.1	48.0
Portugal			9.1		90.9
Finland					100.0
Sweden				100.0	
United Kingdom	12.1		34.1		53.9

Source: European Commission (1997)

Table 18: Duration of initial VET programs (1994)

Country	1 year or less	2 years	3 years	4 years	5 years or more
Belgium		46.4	47.5	5.7	0.4
Denmark	2.4	11.3	44.6	41.7	
Germany	4.9	20.1	73.5	1.5	
Greece	0.3	7.8	44.4	47.5	
Spain	0.7	48.3	46.2	3.4	1.4
France	1.0	84.9	12.5	1.6	
Ireland	32.7	49.8	6.3	11.2	
Italy	13.0	16.7	16.9	8.7	44.7
Luxembourg		4.9	48.1	46.6	0.4
Netherlands	5.0	22.0	38.0	32.1	2.9
Austria	1.6	2.3	36.4	28.3	31.4
Portugal	3.2	11.2	85.6		
Finland	33.0	35.0	20.0	12.0	
Sweden			100.0		
United Kingdom*					

Note: * The flexible nature of the training opportunities in the United Kingdom makes the collection of statistical data on duration difficult.

Source: European Commission (1997)

Table 19: Participation in programs giving access to further education and training opportunities (1994)

Country	No access	Access to VET	Access to general programs	Access to general and VET
Belgium	15.7	4.1	15.7	64.5
Denmark	2.1	0.3	14.1	83.5
Germany	12.4	66.8	6.6	14.2
Greece	7.3	10.7	22.5	59.5
Spain	4.6	44.2	7.0	44.2
France	6.6	29.8		63.6
Ireland	19.2	1.4	16.1	63.3
Italy	28.4	16.6	55.0	
Luxembourg	37.2	8.3	8.4	46.1
Netherlands	11.8	88.2		
Austria	4.4	58.7	3.5	33.4
Portugal	14.6		61.2	24.2
Finland				100.0
Sweden				100.0
United Kingdom				100.0

Source: European Commission (1997)

Enhancing mobility in the labour market (participation)

In recent decades in response to extensive developments in technology, transformations in industry structures and widespread changes in labour forces, lifelong learning and continuing education and training have taken on greater importance. An assessment of the effectiveness of VET systems needs to evaluate the extent to which VET systems promote participation in continuing education and training. Levels of participation can highlight differences across countries in the importance placed on investment in skills and competencies. It can also display variations in the degree of flexibility, inclusiveness and equity associated with the organisation and effectiveness of national VET systems.

Indicators in this area are grouped into three sections. Participation in:

- ✧ continuing VET
- ✧ workplace training
- ✧ adult education.

Continuing VET

Indicator 3.1 presents rates of participation in all adult education and training activities, by age group for the population aged 25–64. The annual average rate of participation across the listed countries was 34%. The estimates show that in all countries, the incidence of training declines with age. For example, while 42% of Australian aged 25–34 participated in formal education and training, only 27% of 45–64-year-olds did. Averaging across countries, about 42% of those aged 25–34 participated in some form of education or training, compared to 40% of those aged 35–44 and 28% of those aged 45–64. The sharp decline in training received by the older age group is repeated in all countries. Even so, in each age group there are large differences in rates of participation across different countries.

Indicator 3.2 shows that the patterns of declining participation by age is even stronger in relation to the duration of training. Thus, not only do those of older age participate less in formal education and training, the education and training that is undertaken is of shorter duration than that undertaken by those of younger age. This is also true of all listed countries, including Australia,

although there remain variations across countries. The average duration of training among 45–64-year-olds was higher in Australia (129.9 hours) and Ireland (165.3 hours) than in the other countries. These age-related patterns in the intensity of training highlight some of the difficulties associated with promoting lifelong learning.

Indicator 3.3 shows that, among the employed, participation in education and training is also related to initial educational attainment. In every listed country, participation rises with level of educational attainment. This may help to explain why participation also rises with age, because younger workers tend to have higher levels of educational attainment. Across all countries, those with higher levels of educational attainment receive substantially more education and training than those with lower qualifications. However, the gaps between educational attainment levels vary by country. Those with only basic school qualifications (less than upper secondary) were far more likely to participate in continuing education and training in Australia (36%) than in the other listed countries. The rate in Australia was more than half of that for those with university qualifications. This relative gap was also less in Australia than the other listed countries, suggesting that, while educational attainment still differentiates between those who do and do not receive continuing VET, workers are more likely in Australia than in other countries to participate in continuing education and training irrespective of their educational background.

While participation among those with the lowest levels of educational attainment are higher in Australia than other countries, the duration of training is substantially shorter. Indicator 3.4 shows that, at every educational attainment level, Australians tended to have durations of training as much as three times shorter than in many other countries. So, the figures suggest that more of the less well-educated participated in training in Australia compared to other countries, but for shorter periods.

Indicator 3.5 shows the incidence of education and training by labour force status for the adult population, aged 25–64 years. On average, just under 36% of adults engaged in some form of training over the previous year, although there was substantial variation around the country mean, from 14% of adults in Poland to 54% in Sweden. The rate for Australia was very close to the country mean. In most countries the incidence of participation in education or training was closely related to labour market status, with the employed showing substantially higher rates of participation than the unemployed, who in turn showed higher rates of participation than those not in the labour force.

Indicator 3.6 presents the average duration of training by labour force status. It shows that, in many countries, including Australia, the duration of training was longer for those who were unemployed than for the employed. This may reflect larger numbers of the unemployed in formal certificate and degree courses.

Indicator 3.7 shows participation in education and training by gender for the adult population. In general men were somewhat more likely to participate in some form of education or training than women, although this pattern was reversed in the United States, Ireland and Sweden.

Workplace training

Indicator 3.8 shows the incidence of job-related education and training by labour force status for those aged 25–64 years. Over one-quarter of adults participated in job-related training, with substantial variation around the mean, with just over 10% of adults in Poland, and just under 40% of adults in the United Kingdom participating in job-related training. The participation gap between the employed and those in other labour market statuses is particularly marked: almost 35% of the employed participated in job-related training, compared with less than 20% of the unemployed and only 7% of those not economically active.

Indicator 3.9 shows that, in general, there is some international variation in the average duration of training per trainee. In Australia, the average duration of training, whether measured in hours, days or weeks was lower than the overall (unweighted) average across the nine countries shown. In The Netherlands, by contrast, which had a lower incidence of training, the duration of training was above average. The average duration of job-related training per employed person (including those who did not receive job-related training) was 51.7 hours per annum, by contrast with 159 hours per employed person in receipt of training. Ranking countries by the amount of training per employed person, New Zealand, which combined above-average incidence as well as duration of training, showed the greatest intensity of training; while Belgium (Flanders), with relatively low incidence and duration, showed the lowest.

Indicator 3.10 reveals that small firms are less likely to provide training for their workers. Thus, averaging across countries, 22.7% of those working in firms with less than 20 employees received some form of education or training, compared with 46% of those working in firms with 500 or more employees. This pattern held across countries, although the incidence of training varied across countries for each employer size group. Among small employers, rates varied from 9% in Poland to 30.9% in the United States.

Indicator 3.11 presents comparative national information on worker participation in education and training by occupational group. It reveals that, across all occupational groups, those in Australia were on average compared to their counterparts in other countries, more likely to receive job-related education and training. In all countries, managers are more likely to receive job-related training than other workers. However, the gaps vary by country. While only 17.9% of machine-operatives in the United States participated in training during the previous 12 months compared with 61.3% of United States managers, the rates were 27.5% and 54.0% respectively for Australia.

Indicator 3.12 shows participation in job-related education and training by gender for the adult population. Compared to participation in education and training for the broader adult population, the gender gap in participation in job-related training tends to be wider. On average, over 30% of adult males received job-related training in the previous 12 months, compared with 23% of women. For Australia, the rates were 34.4% for males and 26.1% for females.

Table 32 presents information for four countries on where training takes place for those engaged in continuing education and training. Information is not available for Australia. Further work using primary data sources is needed to obtain information on job-related (internal/external) education and training by program (formal/informal).

Adult education

Important to an assessment of VET systems is the provision and role of adult and community education (ACE). The ACE sector in Australia, as well as similar sectors in other countries, delivers a wide variety of accredited and non-accredited courses. Participation in adult and community education often provides adults without qualifications and with little formal education and training a pathway to higher levels of education and training. It is an important component in the promotion of lifelong learning. A considerable proportion of the 'learning' experienced by individuals in their engagement with adult and community education can be regarded as 'informal', although much of it also provides accredited qualifications. Published international comparisons of participation in this form of adult education are currently not available, although individual country statistics are published. Further work is needed to examine the potential for comparison on Indicator 3.14.

(A) Continuing VET

Table 20: Participation in continuing education and training, by age group (1994–95) – Indicator 3.1

	All education and training			Job-related training		
	Age 25–34	Age 35–44	Age 45–64	Age 25–34	Age 35–44	Age 45–64
Australia	42.2	40.3	27.3	36.8	35.8	21.5
Belgium (Flanders)	25.2	22.2	18.5	18.7	13.8	10.8
Canada	43.6	41.9	26.6	35.3	32.3	22.8
Ireland	28.1	25.3	15.0	21.5	18.0	9.7
Netherlands	46.4	40.8	25.6	32.2	29.4	14.2
New Zealand	52.7	50.8	37.9	43.7	42.6	31.1
Poland	18.1	17.4	8.4	12.6	13.9	6.5
Sweden	55.7	61.1	49.2	n.a.	n.a.	n.a.
Switzerland	51.6	44.7	33.0	32.9	26.7	21.8
United Kingdom	53.7	53.7	33.6	49.2	49.0	27.5
United States	45.7	45.9	37.1	41.8	41.9	32.8
Unweighted mean	**42.1**	**40.4**	**28.4**	**32.5**	**30.3**	**19.9**

Source: O'Connell (1999)

Table 21: Average duration of training undertaken, by age group (1994–95) – Indicator 3.2

	Average duration Hours			Duration per employee Hours		
	Age 25–34	Age 35–44	Age 45–64	Age 25–34	Age 35–44	Age 45–64
Australia	179.4	139.3	129.9	85.4	63.1	45.2
Belgium	127.1	137.0	106.1	34.7	33.9	31.0
Canada	159.7	114.8	108.4	74.4	51.1	38.1
Ireland	217.1	181.5	165.3	73.3	51.8	42.2
Netherlands	195.9	127.5	92.2	97.5	56.7	31.8
New Zealand	205.8	153.6	93.2	119.5	85.1	43.7
Poland	208.8	152.8	96.9	47.6	32.6	16.2
Switzerland	136.0	84.9	85.1	72.9	41.3	31.6
United Kingdom	121.9	105.6	71.4	75.9	65.3	33.1
United States	141.1	119.4	56.1	69.3	61.3	26.5
Mean	**169.3**	**131.6**	**100.5**	**75.0**	**54.2**	**34.0**

Source: O'Connell (1999)

Table 22: Participation in job-relevant adult education and continuing training, by level of educational attainment in selected countries (1999) – Indicator 3.3

	Participation rate			
	Basic school	Upper secondary	Higher education	All
Australia	36	42	64	43
Denmark	29	51	70	49
Finland	21	35	58	37
Norway	22	44	62	44
Belgium	4	19	33	14
Netherlands	14	27	40	24
Ireland	9	21	41	16
Italy	6	27	46	16
Germany	10	28	45	30
United Kingdom	28	52	70	40
Poland	5	18	27	11
Switzerland	11	32	48	32
Czech Republic	15	29	38	22
Hungary	5	11	35	13
Canada	8	19	33	22
United States	15	31	47	35
New Zealand	29	45	62	38

Source: Undervisnings Ministeriat (2002)

Table 23: Average number of hours of education and training, by level of educational attainment in selected countries (1999) – Indicator 3.4

	Average number of hours per participant			
	Basic school	Upper secondary	Higher education	All
Australia	63	61	64	63
Denmark	193	197	160	188
Finland	80	92	106	97
Norway	102	146	168	148
Belgium	37	106	96	88
Netherlands	93	165	148	139
Ireland	186	198	171	191
Italy	44	118	103	97
Germany	213	138	109	130
United Kingdom	79	142	142	114
Poland	99	97	117	102
Switzerland	70	60	74	65
Czech Republic	5	113	135	99
Hungary	161	117	114	120
Canada	95	91	94	92
New Zealand	167	158	258	177

Source: Statistics Canada (2001)

Table 24: Participation by adults aged 25–64 in continuing education and training, by labour force status (1994–95) – Indicator 3.5

	All	Employed	Unemployed	Inactive
	%	%	%	%
Australia	35.6	42.2	28.3	16.1
Belgium (Flanders)	21.6	27.0	16.6	9.8
Canada	36.5	41.9	30.1	23.1
Ireland	22.0	29.5	8.5	14.5
Netherlands	36.3	43.2	39.2	21.8
New Zealand	46.4	53.1	31.4	29.7
Poland	14.0	20.5	7.9	2.8
Sweden	54.3	60.2	46.0	28.9
Switzerland	41.7	45.7	32.2	27.8
United Kingdom	44.9	56.0	33.1	14.3
United States	41.9	49.0	30.2	17.1
Unweighted mean	**35.9**	**42.6**	**27.6**	**18.7**

Source: O'Connell (1999)

Table 25: Average time in continuing education and training, by labour force status (1994–95) – Indicator 3.6

	Mean number of hours per participant		
	Employed	Unemployed	All
Australia	151	306	167
Belgium	125	221	126
Canada	124	354	205
Czech Republic	133	235	135
Denmark	123	397	206
Finland	125	422	185
Germany	142	320	156
Hungary	195	389	230
Ireland	99	392	173
Italy	147	494	182
Netherlands	151	435	205
New Zealand	132	419	180
Norway	164	207	166
Switzerland	104	433	123
United Kingdom	100	265	127
United States	100	130	115

Source: O'Connell (1999)

Table 26: Participation by adults aged 25–64 in continuing education and training, by gender (1994–95) – Indicator 3.7

	All	Men	Women
	%	%	%
Australia	35.6	36.8	34.4
Belgium	21.6	24.0	19.3
Canada	36.5	37.0	36.0
Ireland	22.0	20.3	23.8
Netherlands	36.3	38.2	34.4
New Zealand	46.4	47.8	45.1
Poland	14.0	15.0	13.1
Sweden	54.3	52.6	56.0
Switzerland	41.7	43.6	40.0
United Kingdom	44.9	45.7	44.2
United States	41.9	41.8	42.1
Unweighted mean	**35.9**	**36.6**	**35.3**

Source: O'Connell (1999)

(B) Workplace training

Table 27: Participation by adults aged 25–64 in job-related continuing education and training, by labour force status (1994–95) – Indicator 3.8

	All	Employed	Unemployed	Inactive
	%	%	%	%
Job-related training				
Australia	30.3	38.1	23.8	6.9
Belgium (Flanders)	14.0	20.0	8.6	0.9
Canada	29.5	37.5	22.0	9.9
Ireland	15.7	23.4	7.1	6.6
Netherlands	24.1	32.5	29.7	5.9
New Zealand	38.4	46.9	24.1	16.3
Poland	10.6	16.5	2.4	1.1
Switzerland	26.5	31.7	27.0	6.0
United Kingdom	39.7	51.9	24.0	7.0
United States	37.8	45.6	28.5	10.1
Unweighted mean	**26.7**	**34.4**	**19.7**	**7.1**

Source: O'Connell (1999)

Table 28: Average duration of training undertaken by employed adults aged 25–64 in continuing education and training (1994–95) – Indicator 3.9

	Rate of participation	Average duration in weeks per trainee	Average duration in days per trainee	Average duration in hours per trainee	Average duration in hours per employed person
	A	B	C	D	E=A*D/100
	%	*Weeks*	*Days*	*Hours*	*Hours*
Australia	38.1	11.1	25.3	128.5	48.9
Belgium	20.0	12.5	23.5	126.2	25.2
Canada	37.5	11.1	26.4	119.8	44.9
Ireland	23.4	15.0	38.1	218.7	51.1
Netherlands	32.5	20.9	35.9	159.0	51.7
Poland	16.5	9.9	29.9	143.2	23.7
Switzerland	31.7	12.0	22.0	111.3	35.3
United Kingdom	51.9	11.0	20.9	99.5	51.6
United States	45.6	8.2	19.8	98.1	44.6
Unweighted mean	**34.4**	**12.5**	**27.3**	**135.8**	**44.9**

Source: O'Connell (1999)

Table 29: Participation by employed adults aged 25–64 in continuing education and training, by type of training and firm size (1994–95) – Indicator 3.10

	Less than 20 employees	20–99 employees	100–499 employees	500 or more employees
Australia	23.3	36.3	45.5	54.7
Belgium (Flanders)	15.2	15.9	25.4	25.0
Canada	30.8	40.8	24.5	46.7
Ireland	10.8	17.4	29.6	34.8
Poland	9.0	21.9	17.6	24.3
Switzerland	26.9	25.0	32.0	41.8
United Kingdom	27.7	46.4	52.0	63.8
United States	30.9	36.3	42.0	59.3
Unweighted mean	**22.7**	**32.9**	**36.1**	**46.0**

Source: O'Connell (1999)

Table 30: Participation by employed adults aged 25–64 in continuing education and training, by occupation (1994–95) – Indicator 3.11

	Managers	Technicians	Clerical	Sales	Skilled workers	Machine operatives
	%	%	%	%	%	%
Australia	54.0	45.6	40.4	31.5	27.1	27.5
Belgium	45.5	24.9*	25.6	21.4	7.8*	
Canada	53.1	41.5	38.7	28.8	25.6	21.9
Ireland	38.7	37.0	30.4	19.8*	13.9*	15.2*
Netherlands	37.4	37.4	32.2	22.4	31.5	24.5*
Poland	33.2	29.8	24.3*	4.4*	13.1	11.4*
Switzerland	42.0	41.0	27.6	27.5	23.7	19.5*
United Kingdom	67.1	63.2	52.0	49.4	34.0	33.5
United States	61.3	67.6	53.7	33.4	32.7	17.9
Unweighted mean	**49.4**	**45.3**	**37.3**	**28.1**	**24.6**	**23.0**

Note: * – indicates less than 30 cases in the sample cell

Source: O'Connell (1999)

Table 31: Participation by adults aged 25–64 in continuing education and training, by gender (1994–95) – Indicator 3.12

	All	Men	Women
	%	%	%
Australia	30.3	34.4	26.1
Belgium	14.0	18.3	10.0
Canada	29.5	33.4	25.8
Ireland	15.7	16.3	15.1
Netherlands	24.1	30.5	17.5
New Zealand	38.4	42.6	34.8
Poland	10.6	11.9	9.4
Sweden	n.a.	n.a.	n.a.
Switzerland	26.5	31.7	21.6
United Kingdom	39.7	42.6	36.8
United States	37.8	39.0	36.7
Unweighted mean	**26.7**	**30.1**	**23.4**

Source: O'Connell (1999)

Table 32: Participation by place where training courses were taken (1991)

	Canada	US	Switzerland	Poland
Training with employer financial support				
Pubic school/college campus	17	19	6	8
Commercial school/training centre	35	32	58	37
Workplace	42	45	22	38
Home/community centre/other	6	4	14	18
Total	**100**	**100**	**100**	**100**
Training with no employer financial support				
Pubic school/college campus	46	43	12	30
Commercial school/training centre	15	27	54	30
Home/community centre/other	38	30	34	40
Total	**100**	**100**	**100**	**100**

Source: Kapsalis (1997)

Achieving equitable outcomes (outcomes and outputs)

An important measure of the effectiveness of VET systems is the extent to which they provide both equal opportunities for different social or demographic groups (access and equity) and successful outcomes. The benefits that individuals obtain from education and training are closely related to the degree of participation. Thus, it is important to monitor the extent to which both individuals and groups have access to differing educational opportunities and how they progress through various educational levels. Access to and participation in many types of educational activities can vary for different groups. Key among these are discrepancies in participation rates according to gender, socio-economic status and region (rural or urban location).

Returns, or benefits, of investing in education come in many forms. While some returns accrue for the individual, others benefit the community more broadly as well as employers. Returns related to the individual include better job opportunities, higher earnings, and jobs that are less sensitive to general economic conditions.

This section presents measures that illustrate both access and outcomes. Indicators are grouped under two headings:

- ✧ access for equity groups
- ✧ outcomes.

Access for equity groups

An important concern for all education and training systems is the extent to which they serve their entire populations. Disparities in educational attainment affect the ability of individuals to compete for jobs, to participate in debate around issues relevant to them, and to function fully and effectively in society. Research undertaken in different countries shows that with certain forms of post-school education and training, participation tends to vary by students' social background (Indicator 4.3), their gender (Indicator 4.1) and their place of residence (Indicator 4.2). For example, in 1994, 40% of young people from high socio-economic status backgrounds in Canada participated in higher education, compared to 18% of those from the low socio-economic status backgrounds (Statistics Canada 1999). It is not clear to what extent these differences apply also to non-university post-school education and training. Published international comparisons of differences in participation by program are currently not available for socio-economic status, region and gender, although individual country statistics are published. Further work is needed to examine the potential for comparisons on Indicators 4.1, 4.2 and 4.3.

Outcomes

The percentages of participants completing the education and training courses they commence provides an indication of the skill levels of workforces and success in delivery. Completion (Indicator 4.4) and dropout (Indicator 4.5) rates, however, are problematic measures. In some countries where vocational education and training is largely modularised, such as the United Kingdom and Australia, successful completion can be measured in terms of modules rather than with certificates and needs to take intentions of participants into account. In other countries dropout and completion is based on graduation rather than simply module completion. Therefore, there are no available published international comparisons of VET completion and dropout. However, such figures are often available from primary sources within countries. Further work will be needed to identify the extent to which comparisons can be made and the range of countries that can be included. This is also the case for identifying the proportions of VET participants who actually gain qualifications (Indicator 4.6) as well as the numbers who go on to higher levels of training (Indicator 4.7), both important measures of the outcomes of education and training.

Labour force measures—including the employment rate (Indicator 4.9) and the unemployment rate (Indicator 4.8) of participants following study and training—can provide an overall reading on the benefits of education and training. Such information can help educators and education stakeholders understand the impact and benefits of higher levels of education, and point to areas where interventions are needed to improve labour market outcomes. Examining these rates for younger people can indicate how they are coping with the transition from school to work (Indicator 4.10) and reveal where measures may be needed to help them make this transition successfully.

Current published international comparisons for VET using the labour force measures are not available. However, several countries undertake graduate destination surveys which could be used to provide information on these measures. Many more countries undertake education and training as well as labour force surveys that could be used to provide comparisons.

International comparisons of the earnings returns to participation in education and training are available. Data provided for Indicator 4.11 compare the ratio of the median annual earnings of those who attained upper secondary education (set to $100) to the median annual earnings of those

who did not complete upper secondary and those who attained tertiary qualifications. The figures show that in most countries, failure to complete upper secondary education carries a substantial earnings cost, although the penalty varies by country. The cost is lower in Australia compared with the average across OECD countries. The returns to tertiary qualifications are substantial in most countries, although less in Australia compared to the OECD mean.

Table 33: Relative earnings of the population with income from employment, by level of educational attainment and gender – Indicator 4.11

			Less than upper secondary	Tertiary type B	Tertiary type A	Tertiary
Australia	1997	Men	87	120	144	136
		Women	85	113	154	137
		M + W	79	103	136	124
Canada	1997	Men	84	109	148	130
		Women	76	116	164	137
		M + W	83	106	152	128
Denmark	1998	Men	87	122	148	132
		Women	89	118	144	124
		M + W	86	113	149	124
Finland	1997	Men	94	128	186	159
		Women	100	122	176	143
		M + W	97	120	183	148
France	1999	Men	88	128	178	159
		Women	79	131	158	145
		M + W	84	125	169	150
Germany	1998	Men	77	105	149	126
		Women	85	104	160	128
		M + W	78	106	157	130
Ireland	1997	Men	72	100	149	131
		Women	57	129	171	156
		M + W	75	114	165	146
Italy	1998	Men	54	x	x	138
		Women	61	x	x	115
		M + W	58	x	x	127
Netherlands	1997	Men	86	142	138	139
		Women	71	128	145	143
		M + W	83	136	141	141
Norway	1998	Men	85	125	133	133
		Women	84	142	136	136
		M + W	84	129	132	132
Portugal	1998	Men	61	149	188	178
		Women	62	131	190	171
		M + W	62	140	192	177
Spain	1996	Men	75	96	178	154
		Women	68	82	155	143
		M + W	80	97	167	151
Sweden	1998	Men	87	x	x	136
		Women	89	x	x	125
		M + W	89	x	x	130
Switzerland	1999	Men	81	122	144	135
		Women	73	131	154	145
		M + W	75	140	161	153
United Kingdom	1999	Men	73	126	159	149
		Women	68	139	193	173
		M + W	65	128	171	157
United States	1999	Men	65	119	183	176
		Women	63	120	170	163
		M + W	67	118	180	173
Country mean		**Men**	**78**	**130**	**163**	**149**
		Women	**75**	**123**	**162**	**144**
		M + W	**77**	**124**	**163**	**146**

Note: x – included in another category
Source: OECD (2001)

Increasing investment in training (resources)

Expenditures on education vary considerably across countries in terms of the share of national resources devoted to education, the source of funds (public or private) spent on education, and the levels of education to which funds are allocated. This section includes the following indicators of education finance:

5.1 Current public educational expenditure as a percentage of gross domestic product (OECD)

5.2 Current public educational expenditure as a percentage of total public expenditure (OECD)

5.3 Current public expenditure per student (OECD)

5.4 Current public expenditure per student as a percentage of gross domestic product (OECD)

5.5 Distribution of current expenditure on education (by type of education and training) (not available)

5.6 Relative proportions of public and private investment in educational institutions (OECD)

5.7 Sources of funds for VET (OECD).

Indicator 5.1 provides information on total expenditures on education as a percentage of gross domestic product. The information provided in the indicator is indicative only. To provide an assessment of the expenditure on education and training, the data would need to be disaggregated to levels of education and training. Further work is needed to derive that information in order to compare expenditure on VET.

Indicator 5.2 provides information on expenditure as a percentage of total public expenditure. This is a rough indicator of the relative importance accorded to education among a nation's or state's public sector activities. It should be noted, however, that variations in the educational share of total public spending also reflect differences among nations and states in the division of responsibility for financing education or other activities between the public and private sectors. A high relative share on this measure may reflect generous public funding of education, restraint on the size of the public sector in areas other than education, or both. Conversely, a low relative share on this measure may reflect a large role for private financing in education, a large public sector in areas other than education, or some of both.

Again the information provided in Indicator 5.2 is indicative only. To provide an assessment of the expenditure on education and training, the data would need to be disaggregated to levels of education and training. Further work is needed to derive that information in order to compare expenditure on VET.

Current public expenditure per student (Indicator 5.3) is a measure of public investment adjusted for the number of students in the education and training system. It is the part of current education expenditure that is financed from public sources divided by the number of full-time-equivalent students enrolled in the education system, including those enrolled in private schools. It reflects the general purchasing power (or standard of living) given up (through public sources) to support the education of each student. Variations in per student expenditure result from differences in national spending priorities, the cost of local educational resources relative to other goods, the size of the corresponding private education sector, and the wealth of a country or state.

Indicator 5.4 adjusts public per-student expenditure by the income of a country, as measured by gross domestic product. It allows for comparisons among countries with wide differences in gross products by examining what each country spends on its students relative to its available resources. For example, a less wealthy country with a per-student expenditure equal to that of another may actually devote a larger share of its available resources to education.

There is a need, in comparing expenditure on education and training, to examine expenditure by type of education and training (Indicator 5.5). The information provided in this indicator should be detailed enough to provide expenditure comparisons across programs in order to look at the distribution of funds for education and training. Published comparisons were not available. Further work is required.

Indicator 5.6 shows that the private sector is more important as a source of funds for tertiary education in Australia than for most OECD countries. Some 31.8% of funding for Australian tertiary education in 1999 came from private sources, compared to the OECD country mean of 21.8%. In Japan and the United States, more than half of all final funds for tertiary education originated from private sources.

Indicator 5.7 presents national comparisons of the sources of funds for vocational education and training of employed adults. It would be improved if data were available for sources of funding for VET by age and by level of government for funding provided by governments (national, state, local).

Table 34: International comparison of public expenditure on education as a percentage of gross domestic product – Indicator 5.1

	Year	Per cent of gross domestic product
Canada	1994	6.9
United States	1994	5.4
Japan	1994	3.6
Korea	1995	3.7
Singapore	1995	3.0
Austria	1996	5.4
Belgium	1996	3.1
Finland	1996	7.5
France	1996	6.0
Germany	1996	4.8
Italy	1996	4.9
Netherlands	1996	5.1
Norway	1996	7.4
Sweden	1996	8.3
Switzerland	1996	5.4
United Kingdom	1995	5.3
Australia	1995	5.5

Source: UNESCO (1999)

Table 35: International comparison of public expenditure on education as a percentage of total government expenditure – Indicator 5.2

	Year	Per cent of total government expenditure
Canada	1994	12.9
United States	1994	14.4
Japan	1994	9.9
Korea	1995	17.5
Singapore	1995	23.4
Austria	1996	10.4
Belgium	1996	6.0
Finland	1996	12.2
France	1996	10.9
Germany	1996	9.6
Italy	1996	9.1
Netherlands	1996	9.8
Norway	1996	15.8
Sweden	1996	12.2
Switzerland	1996	15.4
United Kingdom	1995	11.6
Australia	1995	13.5
New Zealand	1996	–

Source: UNESCO (1999)

Table 36: Expenditure per student (1998) – Indicator 5.3

	Pre-primary	Primary	Lower secondary	Upper secondary	All secondary	Post-secondary non-tertiary	All	Tertiary	
								Tertiary type B	Tertiary type A
Australia	m	3 981	5 184	6 830	5 830	7 218	11 539	8341	12 279
Austria	5 029	6 065	7 669	8 783	8 163	7 245	11 279	x(7)	x(7)
Belgium	2 726	3 743	x(5)	x(5)	5 970	x(5)	6 508	x(7)	x(7)
Belgium (Fl.)	2 601	3 799	x(5)	x(5)	6 238	x(5)	6 597	x(7)	x(7)
Canada	4 535	m	m	m	m	5 735	14 579	13795	14 899
Czech Republic	2 231	1 645	2 879	3 575	3 182	1 334	5 584	3191	6 326
Denmark	5 664	6 713	6 617	7 705	7 200	6 826	9 562	x(7)	x(7)
Finland	3 665	4 641	4 616	5 515	5 111	x(5)	7 327	5776	7 582
France	3 609	3 752	6 133	7 191	6 605	m	7 226	7636	7 113
Germany	4 648	3 531	4 641	9 519	6 209	10 924	9 481	5422	10 139
Greece	x(2)	2 368	x(5)	x(5)	3 287	2 773	4 157	3232	4 521
Hungary	2 160	2 028	1 906	2 383	2140	2 304	5 073	a	5 080
Iceland	m	m	m	m	m	m	m	m	m
Ireland	2 555	2 745	x(5)	x(5)	3 934	4 361	8 522	x(7)	x(7)
Italy	4 730	5 653	6 627	6 340	6 458	x(5)	6 295	6283	6 295
Japan	3 123	5 075	5 515	6 257	5 890	x(5)	9 871	7270	10 374
Korea	1 287	2 838	3 374	3 692	3 544	a	6 356	4185	7 820
Luxembourg	m	m	m	m	m	m	m	m	m
Mexico	865	863	1 268	2 253	1 586	a	3 800	x(7)	3 800
Netherlands	3 630	3 795	5 459	5 120	5 304	x(5,7)	10 757	7592	10 796
New Zealand	m	m	m	m	m	m	m	m	m
Norway	7 924	5 761	7 116	7 839	7 343	x(5)	10 918	x(9)	10 918
Poland	2 747	1 496	x(2)	1 438	1 438	m	4 262	x(9)	4 262
Portugal	1 717	3 121	4 219	5 137	4 636	a	m	m	m
Spain	2 586	3 267	x(5)	x(5)	4 274	x(5)	5 038	4767	5 056
Sweden	3 210	5 579	5 567	5 701	5 648	m	13 224	x(7)	x(7)
Switzerland	2 593	6 470	7 618	11 219	9 348	7 621	16 563	10273	17 310
Turkey	m	m	m	m	m	m	m	m	m
United Kingdom	4 910	3 329	x(5)	x(5)	5 230	x(5)	9 699	x(7)	x(7)
United States	6 441	6 043	x(5)	x(5)	7 764	x(7)	19 802	x(7)	x(7)
Country mean	3 585	3 940	5 083	5 916	5 294	4 404	9 063		
OECD total	**3 883**	**3 915**			**5 625**		**11 720**		

Notes: m – data not available
a – data are not applicable because the category does not apply
x – data are included in another column or category

Source: OECD (2001)

Table 37: Expenditures per student as a percentage of gross domestic product on public and private institutions, by level of education and country (based on full-time equivalents) (1998) – Indicator 5.4

	Expenditures per student on public and private institutions as a percentage of GDP		
Country	Primary education	Secondary education	Post-secondary education
OECD mean	1.4	2.2	1.3
Australia	1.6	2.1	1.6
Austria	1.2	3.2	1.5
Belgium	–	–	0.9
Canada	–	–	1.9
Czech Republic	0.8	2.3	0.9
Denmark	1.8	2.3	1.5
Finland	1.6	2.1	1.7
France	1.2	3.1	1.1
Germany	0.7	2.7	1.0
Greece	1.0	1.7	1.2
Hungary	1.0	2.0	1.0
Iceland	–	–	1.8
Ireland	1.5	1.7	1.4
Italy	1.2	2.3	0.8
Japan	1.3	1.8	1.0
Korea	1.6	2.3	2.5
Luxembourg			
Mexico	1.7	1.8	0.9
Netherlands	1.2	1.8	1.2
New Zealand	–	–	–
Norway	–	–	1.5
Poland	2.3	1.1	1.3
Portugal	–	–	1.0
Spain	1.3	2.1	1.1
Sweden	2.1	2.4	1.7
Switzerland	1.7	2.6	1.1
Turkey	–	–	0.8
United Kingdom	1.2	2.3	1.1
United States	1.7	2.0	2.3

Note: GDP = gross domestic product
Source: OECD (2001)

Table 38: Relative proportions of public and private investment in educational institutions – Indicator 5.6

	Primary, secondary and post-secondary non-tertiary education			Tertiary education		
	Public	Private	Total	Public	Private	Total
OECD countries						
Australia	3.21	0.59	3.80	1.09	0.51	1.59
Austria	3.99	0.22	4.21	1.44	0.02	1.46
Belgium	3.52	m	3.52	0.91	m	0.91
Belgium (Fl.)	3.36	m	3.36	0.83	m	0.83
Canada	3.72	0.34	4.06	1.53	0.32	1.85
Czech Republic	2.74	0.39	3.13	0.76	0.12	0.88
Denmark	4.25	0.09	4.34	1.49	0.04	1.53
Finland	3.67	x	3.66	1.68	x	1.67
France	4.14	0.22	4.35	1.01	0.12	1.13
Germany	2.79	0.89	3.68	0.97	0.08	1.04
Greece	2.32	1.15	3.47	1.04	0.17	1.21
Hungary	2.85	0.25	3.10	0.80	0.21	1.01
Iceland	4.25	m	m	1.74	0.04	1.78
Ireland	3.18	0.10	3.28	1.08	0.30	1.38
Italy	3.43	0.04	3.47	0.68	0.16	0.84
Japan	2.78	0.25	3.03	0.43	0.60	1.02
Korea	3.15	0.80	3.95	0.44	2.07	2.51
Luxembourg	m	m	m	m	m	m
Mexico	3.00	0.48	3.48	0.78	0.11	0.89
Netherlands	2.97	0.08	3.06	1.15	0.03	1.18
New Zealand	4.61	m	m	1.06	m	m
Norway	4.38	0.04	4.42	1.42	0.09	1.51
Poland	3.48	m	m	1.16	m	m
Portugal	4.22	n	4.22	0.96	0.08	1.04
Slovak Republic	m	m	m	m	m	m
Spain	3.26	0.40	3.65	0.84	0.27	1.11
Sweden	4.51	0.01	4.52	1.49	0.17	1.67
Switzerland	3.99	0.47	4.46	1.11	n	1.11
Turkey	1.82	0.51	2.33	0.81	0.03	0.84
United Kingdom	3.40	m	m	0.83	0.28	1.11
United States	3.40	0.35	3.74	1.07	1.22	2.29
Country mean	**3.47**	**0.35**	**3.71**	**1.06**	**0.29**	**1.33**
OECD total	**3.28**	**0.37**	**3.64**	**0.93**	**0.67**	**1.59**

Notes: m – data not available
x – data are included in another column or category
n – magnitude is either negligible or zero

Source: OECD (2001)

Table 39: Sources of financing of continuing education and training among employed adults by type of training (1994–95) – Indicator 5.7

	All education and training			Job-related training		
	Self	Employer	Government	Self	Employer	Government
Source of funding	%	%	%	%	%	%
Australia	42.6	62.4	8.2	37.6	68.4	8.5
Belgium	38.6	61.6	12.5	30.9	71.5	14.2
Canada	43.1	66.9	14.1	38.8	74.1	14.0
Ireland	34.5	54.2	11.3	23.4	66.0	12.5
Netherlands	37.3	69.0	6.3	29.7	78.8	7.5
New Zealand	39.2	67.4	15.7	35.2	74.6	16.0
Poland	29.5	66.2	5.4	18.7	77.1	4.5
Switzerland	55.3	53.1	15.5	46.7	65.2	17.3
United Kingdom	19.1	81.6	9.2	15.3	86.5	9.0
United States	28.6	73.2	7.7	25.2	77.8	7.6
Unweighted mean	**36.8**	**67.8**	**10.6**	**30.1**	**74.0**	**11.1**

Source: O'Connell (1999)

Maximising the value of public VET expenditure (outputs)

This objective requires relating expenditure to publicly funded outputs, such as contact hours delivered. There appear to be no internationally reported indicators under this general heading, and those for Australia are still in the course of development. Two possibilities are:

6.1 Cost per contact hour

6.2 Cost per completion

References

ABS (Australian Bureau of Statistics) 1994, *Participation in education*, cat. no.6272.0, Australian Bureau of Statistics, Canberra.

—— 1997, *Transition from education to work*, cat. no.6227.0, ABS, Canberra.

—— 2002a, *Education and work*, cat. no.6227.0, ABS, Canberra.

—— 2002b, *Measuring learning in Australia: Framework for education and training statistics*, ABS, Canberra.

ANTA (Australian National Training Authority) 1998, *A bridge to the future: Australia's national strategy for VET, 1998–2003*, Australian National Training Authority, Brisbane.

Collins, K 1989, *Education in Japan: Statistical comparisons with Australia*, Australian Government Publishing Service, Canberra.

European Commission 1997, *Key data on vocational education in the European Union*, Directorate-General XXII, the European Commission, Luxembourg.

—— 1999, *Young people's training: Key data on vocational training in the European Union*, Directorate-General XXII, the European Commission, Luxembourg.

—— 2000, *Key data on education in Europe*, Directorate-General XXII, the European Commission, Luxembourg.

European Training Foundation 2000, *Vocational education and training in Central and Eastern Europe: Key indicators report 2000*, ETF, Luxembourg.

Fahmy, F 1992, *Egypt: A comparative study*, Australian Government Publishing Service, Canberra.

Felstead, A & Ashton, D 1994, *International study of vocational education and training in the Federal Republic of Germany, France, Japan, Singapore and the United States*, University of Leicester Centre for Labour Market Studies, Leicester.

Hempel-Jorgenson, L & Hempel-Jorgenson, E 1992, *Denmark: A comparative study*, AGPS, Canberra.

Kapsalis, C 1997, *Employee training: An international perspective*, Statistics Canada, Ontario.

Lenahan, B, Burke, G & Hing Tong Ma 1998, *Selected Asian economies and Australia: An overview of educational expenditure and participation*, Monash University Centre for the Economics of Education and Training–Australian Council for Educational Research, Melbourne.

Malley, J, Keating, J, Robinson, L & Hawke, G 2000, *The quest for a working blueprint: Vocational education and training in Australian secondary schools*, NCVER, Adelaide.

Ministerial Council for Education, Employment, Training and Youth Affairs 1998, *National report on schooling in Australia, 1998*, Ministerial Council for Education, Employment, Training and Youth Affairs, °Melbourne.

National Center for Education Statistics 1996, *Education in states and nations: Indicators comparing US states with other industrialized countries in 1991*, United States Government Printing Office, Washington DC.

—— 1997, *Education and the economy: An indicators report*, United States Government Printing Office, Washington DC.

—— 2001, *Condition of education*, United States Government Printing Office, Washington DC.

O'Connell, P 1999, *Adults in training: An international comparison of continuing education and training*, OECD, Paris.

OECD (Organisation for Economic Co-operation and Development) 1999, *Classifying educational programs: Manual for ISCED–97 implementation in OECD countries*, OECD, Paris.

—— 2000a, *From initial education to working life: Making transitions work*, OECD, Paris.

—— 2000b *Investing in education: Analysis of the 1999 World Education Indicators*, OECD, Paris.

—— 2001, *Education at a glance: OECD indicators*, Centre for Educational Research and Innovation, OECD, Paris.

O'Reilly, B 2002, *Education and training: How does Australia compare internationally?*, ABS, Canberra.

Productivity Commission 1995, *Report on government services 1995*, Australian Productivity Commission, Canberra.

—— 2002, *Report on government services 2002*, Australian Productivity Commission, Canberra.

Ryan, P 1992, *International comparisons of vocational education and training*, Falmer Press, London.

Schleicher, A 1995, 'Comparability issues in international educational comparisons', in *Reflections on educational achievement*, eds Bos & Lehmann, Waxmann Publishing Co., Berlin, pp.216–29.

Seyfried, E 2001, *Definition of indicators for a European quality in VET strategy*, European Centre for the Development of Vocational Training, Thessaloniki, Greece.
Statistics Canada 1999, *Education indicators in Canada 1999*, Statistics Canada, Ontario.
—— 2001, *Adult education participation in North America: International perspectives*, Statistics Canada, Ontario.
Teese, R 1992a, *Belgium: A comparative study*, AGPS, Canberra.
—— 1992b, *France: A comparative study*, AGPS, Canberra.
Teese, R, Burke, G & Marginson, S 1996, *International comparisons in higher education: A research study*, Department of Education, Victoria.
Undervisnings Ministeriat 2002, *Facts and figures: Education indicators, Denmark 2002*, Danish Ministry of Education, Forlag.
UNESCO (United Nations Educational, Scientific and Cultural Organisation) 1999, *Statistical yearbook*, UNESCO, Paris.
Van den Berghe 1997, *Indicators in perspective: The use of quality indicators in vocational education and training*, European Centre for the Development of Vocational Training, Thessaloniki, Greece.
Van Herpen 1992, 'Conceptual models in use for education indicators', *The OECD international educational indicators: A framework for analysis*, OECD, Paris, pp.25–52.
West, A 1999, *Vocational education and training indicators project: EU priorities and objectives related to VET*, European Centre for the Development of Vocational Training, Thessaloniki, Greece.
Windshuttle, K 1988a, *Education in Canada: Statistical comparisons with Australia*, AGPS, Canberra.
—— 1988b, *Education in the USA: Statistical comparisons with Australia*, AGPS, Canberra.

The National Centre for Vocational Education Research is Australia's primary research and development organisation in the field of vocational education and training.

NCVER undertakes and manages research programs and monitors the performance of Australia's training system.

NCVER provides a range of information aimed at improving the quality of training at all levels.

ISBN 1 74096 123 4 print edition
ISBN 1 74096 124 2 web edition

BEST COPY AVAILABLE

U.S. Department of Education
Office of Educational Research and Improvement (OERI)
National Library of Education (NLE)
Educational Resources Information Center (ERIC)

NOTICE

Reproduction Basis

[X] This document is covered by a signed "Reproduction Release (Blanket)" form (on file within the ERIC system), encompassing all or classes of documents from its source organization and, therefore, does not require a "Specific Document" Release form.

[ ] This document is Federally-funded, or carries its own permission to reproduce, or is otherwise in the public domain and, therefore, may be reproduced by ERIC without a signed Reproduction Release form (either "Specific Document" or "Blanket").